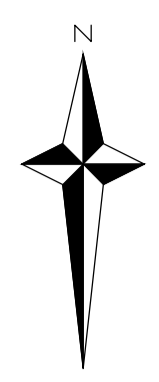
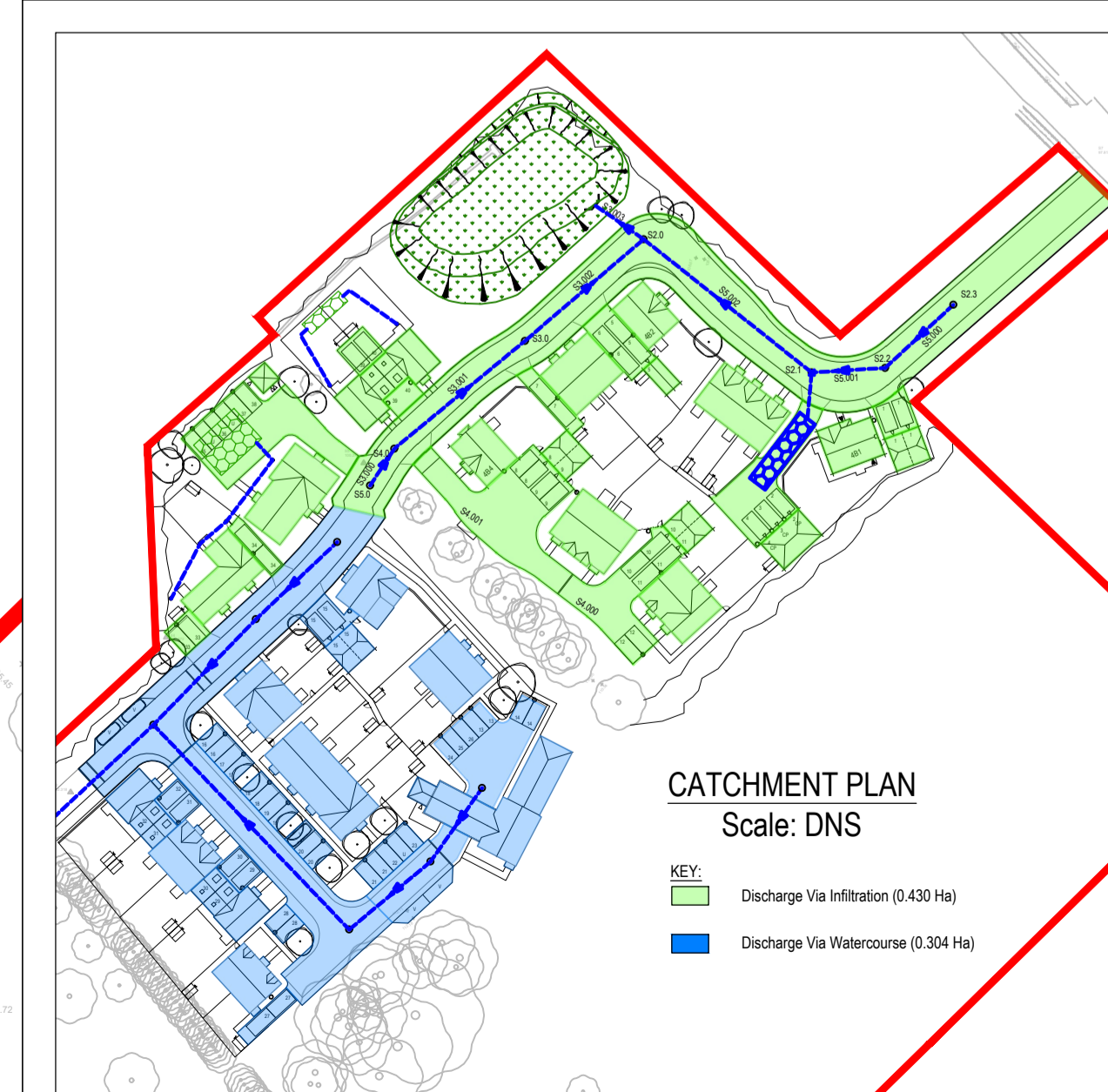
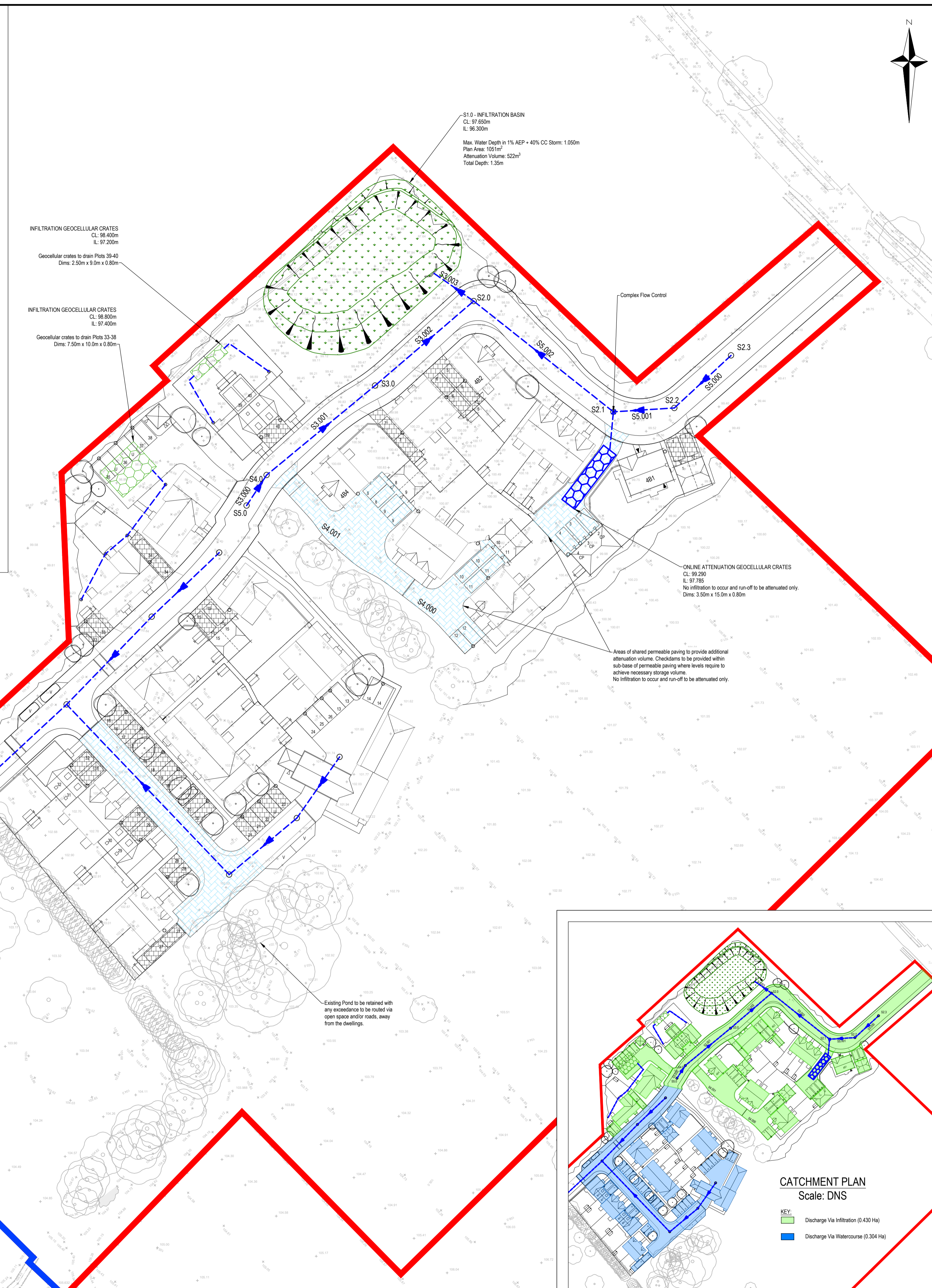
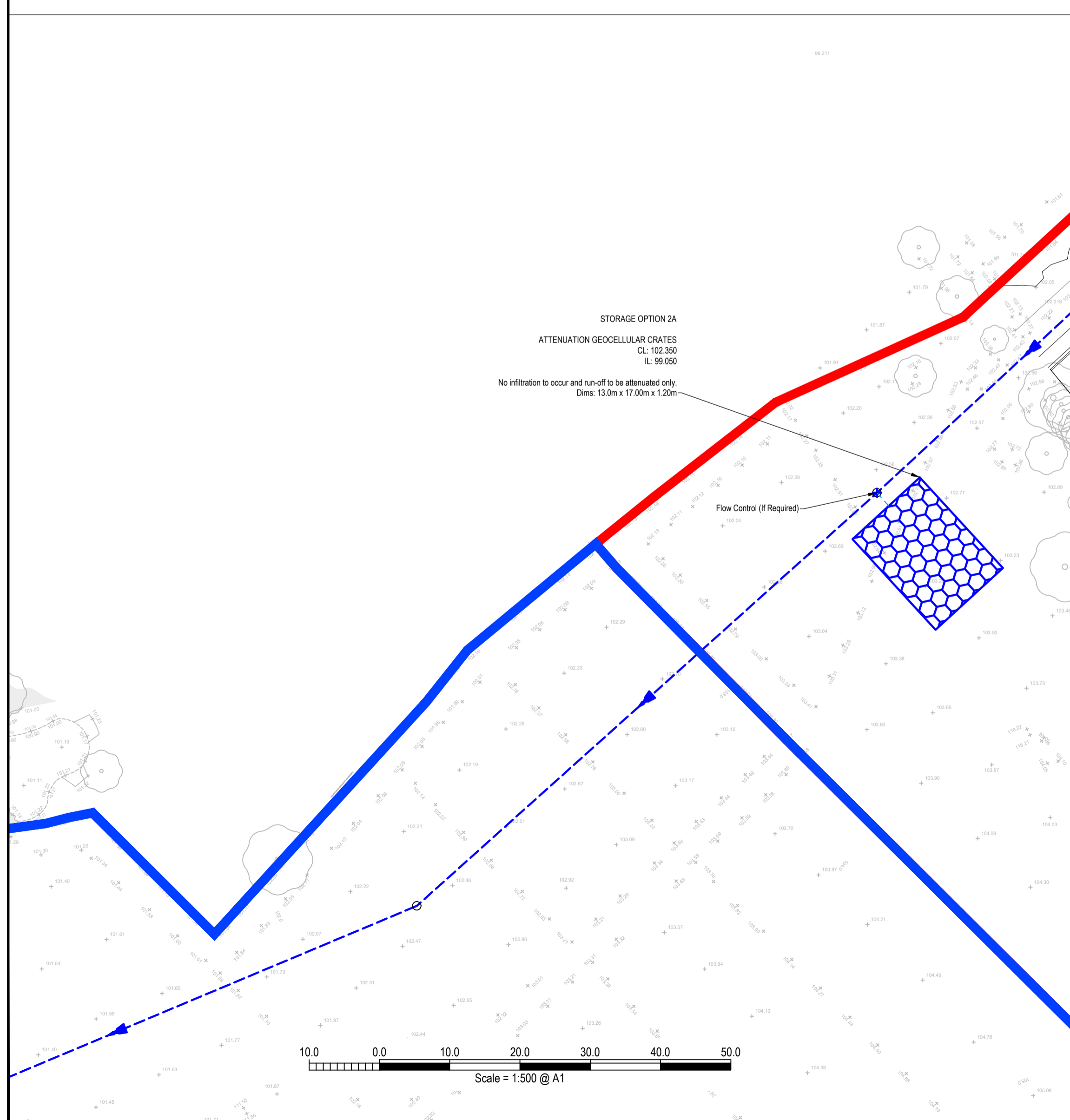
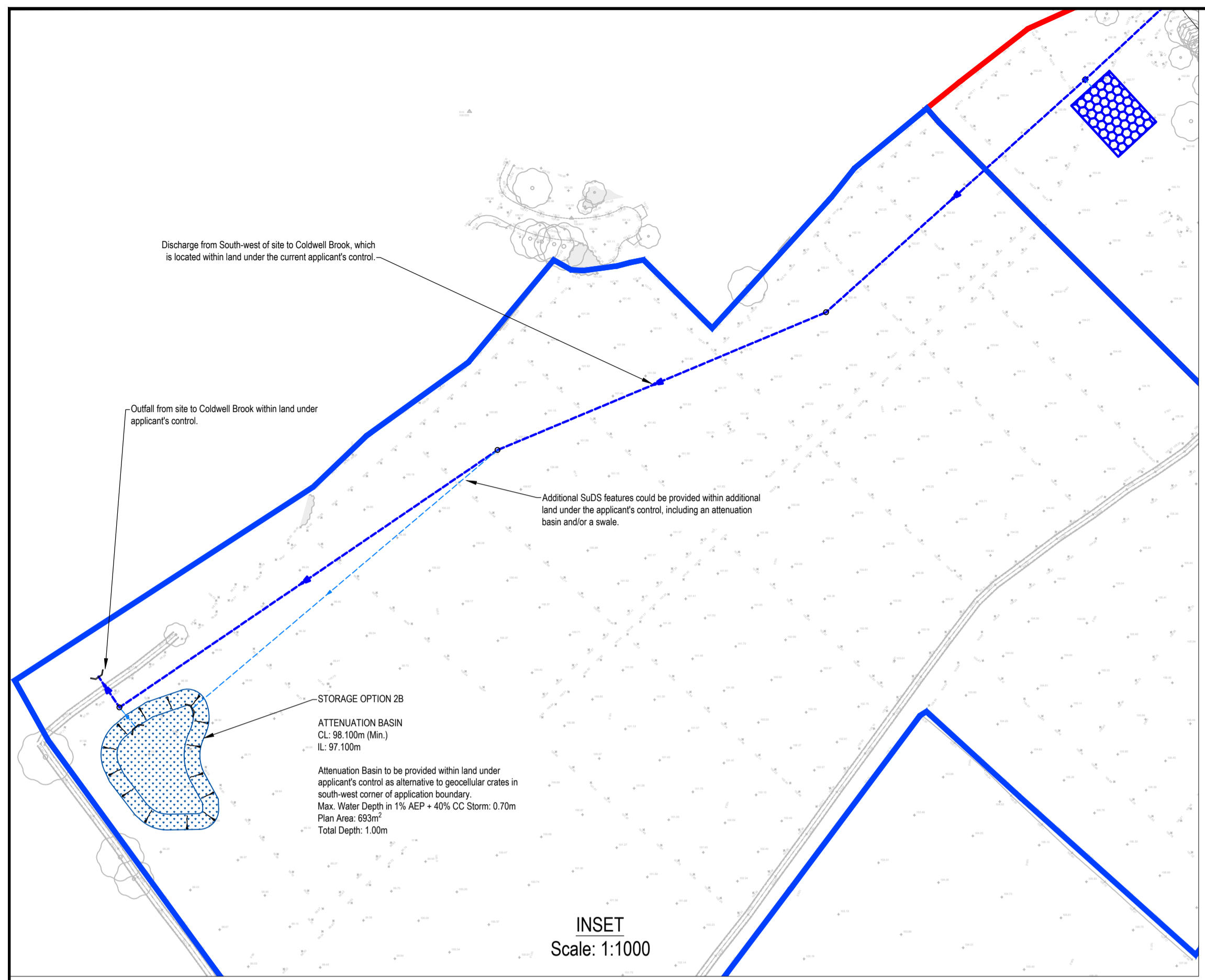




Appendix O
Option 2 – Surface Water Drainage Strategy & Calculations



- NOTES
- Dimensions not to be scaled from this drawing for construction purposes.
 - This drawing should be read in conjunction with the associated Flood Risk Assessment and all relevant standards.
 - All drainage features are indicative only for preliminary design purposes and are subject to detailed design. All levels shown in meters AOD.
 - Site Layout taken from Thrive Architects drawing OBS180824 CMP_01 P10, dated June 2022.
 - Topographical levels taken from Greenhatch group drawing 42917_T1, dated February 2022.

- KEY
- Application Boundary
 - Land Under Applicant's Control
 - Surface Water Sewer
 - Surface Water Sewer Alternative Route
 - Manhole Chamber
 - Flow Control Chamber
 - Headwall
 - MicroDrainage Pipe Reference Direction of Flow
 - Infiltration Basin
 - Geocellular Crates (Infiltration)
 - Proposed Permeable Paving with Deepened Porous Sub-base (Attenuation Only)
 - Geocellular Crates (Attenuation Only)
 - Private Parking Area (Attenuation Only)
 - Attenuation Basin

P2	Issued with Technical Note.	18/01/2024	JB/CS
Rev.	Description	Date	Chkd

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Client :
Obsidian Strategic Asset Management

Project :
Land off London Lane
Ascott-under-Wychwood

Title :
Outline Surface Water Drainage Strategy
Option 2 - Hybrid Infiltration and Discharge to Watercourse

Project Engineer : S McNair Scale : 1:500 @ A1
Project Director : J Birch Date : January 2024

Status : PLANNING
Drawing No. 8211067 - SK08 Rev P2

Cornerstone Court
62 Foxhall Road
Didcot OX11 7AD

Land West of London Lane
Ascott-under-Wychwood
GF Run-off - Inf. Catchment



Date 18/01/2024 13:11
File 8211067 - OPTION 2 - Ge...

Designed by S McNair
Checked by C Salt

Micro Drainage Source Control 2020.1.3


ICP SUDS Mean Annual Flood

Input

Return Period (years)	100	Soil	0.450
Area (ha)	0.830	Urban	0.000
SAAR (mm)	750	Region Number	Region 6

Results 1/s

QBAR Rural	4.0
QBAR Urban	4.0
Q100 years	12.6
Q1 year	3.4
Q30 years	9.0
Q100 years	12.6

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood GF Run-off - Waterc. Catchment	
Date 18/01/2024 13:09 File 8211067 - OPTION 2 - Ge...	Designed by S McNair Checked by C Salt	
Micro Drainage	Source Control 2020.1.3	


ICP SUDS Mean Annual Flood

Input

Return Period (years)	100	Soil	0.450
Area (ha)	0.510	Urban	0.000
SAAR (mm)	750	Region Number	Region 6

Results 1/s

QBAR Rural	2.4
QBAR Urban	2.4
Q100 years	7.7
Q1 year	2.1
Q30 years	5.5
Q100 years	7.7

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - HYBRID INF. BASIN	
Date 18/01/2024 14:31 File 8211067 - OPTION 2 - OU...	Designed by S McNair Checked by C Salt	
Micro Drainage	Network 2020.1.3	

STORM SEWER DESIGN by the Modified Rational Method


Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model

Return Period (years)	100
FEH Rainfall Version	2013
Site Location GB 430500 218950 SP 30500 18950	
Data Type	Catchment
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.900
PIMP (%)	100
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.200
Maximum Backdrop Height (m)	1.500
Min Design Depth for Optimisation (m)	1.200
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - HYBRID INF. BASIN	
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Micro Drainage	Network 2020.1.3	


PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S3.000	o	225	S5.0	100.700	99.535	0.940	Open Manhole	1200
S4.000	o	150	S4.2	101.350	100.150	1.050	Open Manhole	1200
S4.001	o	150	S4.1	101.300	99.960	1.190	Open Manhole	1200
S3.001	o	225	S4.0	100.600	99.450	0.925	Open Manhole	1200
S3.002	o	225	S3.0	99.900	98.435	1.240	Open Manhole	1200
S5.000	o	150	S2.3	99.000	97.950	0.900	Open Manhole	1200
S5.001	o	150	S2.2	99.400	97.815	1.435	Open Manhole	1200
S5.002	o	150	S2.1	99.290	97.785	1.355	Open Manhole	1200
S3.003	o	300	S2.0	98.600	97.340	0.960	Open Manhole	1200
S3.004	o	150	S1	97.650	96.300	1.200	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S3.000	17.460	205.4	S4.0	100.600	99.450	0.925	Open Manhole	1200
S4.000	27.305	143.7	S4.1	101.300	99.960	1.190	Open Manhole	1200
S4.001	23.523	54.1	S4.0	100.600	99.525	0.925	Open Manhole	1200
S3.001	24.370	24.0	S3.0	99.900	98.435	1.240	Open Manhole	1200
S3.002	32.737	32.1	S2.0	98.600	97.415	0.960	Open Manhole	1200
S5.000	20.072	148.7	S2.2	99.400	97.815	1.435	Open Manhole	1200
S5.001	3.995	133.2	S2.1	99.290	97.785	1.355	Open Manhole	1200
S5.002	43.624	147.9	S2.0	98.600	97.490	0.960	Open Manhole	1200
S3.003	8.143	203.6	S1	97.650	97.300	0.050	Open Manhole	1200
S3.004	15.567	103.8	S	100.000	96.150	3.700	Open Manhole	150


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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - HYBRID INF. BASIN	
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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)
3.000	-	-	100	0.019	0.019	0.019
4.000	-	-	100	0.020	0.020	0.020
4.001	-	-	100	0.048	0.048	0.048
3.001	-	-	100	0.029	0.029	0.029
3.002	-	-	100	0.019	0.019	0.019
5.000	-	-	100	0.042	0.042	0.042
5.001	-	-	100	0.032	0.032	0.032
5.002	-	-	100	0.050	0.050	0.050
3.003	-	-	100	0.113	0.113	0.113
3.004	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.372	0.372	0.372

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)
S3.004	S	100.000	96.150	96.150	150	0

Glanville Consultants		Page 4
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - HYBRID INF. BASIN	
Date 18/01/2024 14:31 File 8211067 - OPTION 2 - OU...	Designed by S McNair Checked by C Salt	
Micro Drainage	Network 2020.1.3	

Online Controls for Storm

Complex Manhole: S4.0, DS/PN: S3.001, Volume (m³): 2.3

Hydro-Brake® Optimum

Unit Reference	MD-SCU-0100-8000-0600-8000
Design Head (m)	0.600
Design Flow (l/s)	8.0
Flush-Flo™	Calculated
Objective	Linear discharge profile
Application	Surface
Sump Available	Yes
Diameter (mm)	100
Invert Level (m)	99.450
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.600	8.0
Flush-Flo™	0.128	4.3
Kick-Flo®	0.150	4.2
Mean Flow over Head Range	-	5.3


The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.6	1.200	11.1	3.000	17.2	7.000	25.8
0.200	4.8	1.400	11.9	3.500	18.5	7.500	26.7
0.300	5.8	1.600	12.7	4.000	19.7	8.000	27.6
0.400	6.6	1.800	13.4	4.500	20.9	8.500	28.4
0.500	7.3	2.000	14.1	5.000	21.9	9.000	29.3
0.600	8.0	2.200	14.8	5.500	23.0	9.500	30.1
0.800	9.2	2.400	15.4	6.000	24.0		
1.000	10.2	2.600	16.0	6.500	24.8		

Weir

Discharge Coef 0.544 Width (m) 1.200 Invert Level (m) 100.050

Complex Manhole: S2.1, DS/PN: S5.002, Volume (m³): 1.8

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - HYBRID INF. BASIN	
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Micro Drainage	Network 2020.1.3	

Hydro-Brake® Optimum

```

Unit Reference MD-SHE-0049-1000-0800-1000
Design Head (m) 0.800
Design Flow (l/s) 1.0
  Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 49
Invert Level (m) 97.785
Minimum Outlet Pipe Diameter (mm) 75
Suggested Manhole Diameter (mm) 1200

```

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.800	1.0
Flush-Flo™	0.215	0.9
Kick-Flo®	0.437	0.8
Mean Flow over Head Range	-	0.8

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated


Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.8	1.200	1.2	3.000	1.8	7.000	2.7
0.200	0.9	1.400	1.3	3.500	1.9	7.500	2.8
0.300	0.9	1.600	1.4	4.000	2.1	8.000	2.9
0.400	0.8	1.800	1.4	4.500	2.2	8.500	2.9
0.500	0.8	2.000	1.5	5.000	2.3	9.000	3.0
0.600	0.9	2.200	1.6	5.500	2.4	9.500	3.1
0.800	1.0	2.400	1.6	6.000	2.5		
1.000	1.1	2.600	1.7	6.500	2.6		

Weir

Discharge Coef 0.544 Width (m) 1.200 Invert Level (m) 98.585

Weir Manhole: S1, DS/PN: S3.004, Volume (m³): 2.0

Discharge Coef 0.544 Width (m) 1.200 Invert Level (m) 97.650

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - HYBRID INF. BASIN	
Date 18/01/2024 14:31 File 8211067 - OPTION 2 - OU...	Designed by S McNair Checked by C Salt	
Micro Drainage	Network 2020.1.3	

Storage Structures for Storm

Porous Car Park Manhole: S4.2, DS/PN: S4.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	4.8
Membrane Percolation (mm/hr)	1000	Length (m)	25.5
Max Percolation (l/s)	34.0	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	100.150	Cap Volume Depth (m)	0.500

Porous Car Park Manhole: S4.1, DS/PN: S4.001

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	2.5
Membrane Percolation (mm/hr)	1000	Length (m)	27.0
Max Percolation (l/s)	18.8	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	99.960	Cap Volume Depth (m)	0.500

Porous Car Park Manhole: S4.0, DS/PN: S3.001

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.7
Membrane Percolation (mm/hr)	1000	Length (m)	15.0
Max Percolation (l/s)	23.8	Slope (1:X)	20.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	99.450	Cap Volume Depth (m)	0.500

Cellular Storage Manhole: S2.1, DS/PN: S5.002


Invert Level (m)	97.785	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	52.5	52.5	0.900	0.0	82.1
0.800	52.5	82.1			

Infiltration Basin Manhole: S1, DS/PN: S3.004

Invert Level (m)	96.300	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.01800	Porosity	1.00
Infiltration Coefficient Side (m/hr)	0.01800		

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	373.6	1.050	620.6	1.350	702.6

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - HYBRID INF. BASIN	
Date 18/01/2024 14:31 File 8211067 - OPTION 2 - OU...	Designed by S McNair Checked by C Salt	
Micro Drainage	Network 2020.1.3	

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

Synthetic Rainfall Details


Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 430500 218950 SP 30500 18950
Data Type Catchment
Cv (Summer) 0.750
Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 60, 120, 240, 360, 480, 960, 1440, 2160,
2880, 4320, 5760
Return Period(s) (years) 2, 10, 30, 100
Climate Change (%) 0, 0, 0, 40


PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow /	
							Cap.	
S3.000	S5.0	60 minute 2 year Winter I+0%	100.700	99.676	-0.084	0.000	0.03	
S4.000	S4.2	120 minute 2 year Winter I+0%	101.350	100.173	-0.127	0.000	0.06	
S4.001	S4.1	60 minute 2 year Summer I+0%	101.300	100.002	-0.108	0.000	0.17	
S3.001	S4.0	60 minute 2 year Winter I+0%	100.600	99.673	-0.002	0.000	0.05	
S3.002	S3.0	60 minute 2 year Summer I+0%	99.900	98.474	-0.186	0.000	0.07	
S5.000	S2.3	240 minute 2 year Winter I+0%	99.000	98.086	-0.014	0.000	0.10	
S5.001	S2.2	240 minute 2 year Winter I+0%	99.400	98.085	0.120	0.000	0.21	
S5.002	S2.1	240 minute 2 year Winter I+0%	99.290	98.084	0.149	0.000	0.06	
S3.003	S2.0	60 minute 2 year Summer I+0%	98.600	97.449	-0.191	0.000	0.29	
S3.004	S1	960 minute 2 year Winter I+0%	97.650	96.460	0.010	0.000	0.00	

		Half Drain Pipe			
PN	US/MH Name	Overflow (l/s)	Maximum Vol (m ³)	Time Flow (mins) (l/s)	Pipe Status
S3.000	S5.0		0.153	1.1	OK

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - HYBRID INF. BASIN	
Date 18/01/2024 14:31 File 8211067 - OPTION 2 - OU...	Designed by S McNair Checked by C Salt	
Micro Drainage	Network 2020.1.3	

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

PN	US/MH Name	Overflow (l/s)	Maximum Vol (m ³)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S4.000	S4.2		0.870	56	0.8	OK
S4.001	S4.1		0.916	26	3.9	OK
S3.001	S4.0		1.673	16	5.0	OK
S3.002	S3.0		0.044		6.0	OK
S5.000	S2.3		0.149		1.4	OK
S5.001	S2.2		0.615		2.3	SURCHARGED
S5.002	S2.1		15.291	212	0.9	SURCHARGED
S3.003	S2.0		0.121		16.6	OK
S3.004	S1		62.674	576	0.0	SURCHARGED

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Micro Drainage	Network 2020.1.3	

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

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 5
Number of Online Controls 3 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details


Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 430500 218950 SP 30500 18950
Data Type Catchment
Cv (Summer) 0.750
Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 60, 120, 240, 360, 480, 960, 1440, 2160,
2880, 4320, 5760
Return Period(s) (years) 2, 10, 30, 100
Climate Change (%) 0, 0, 0, 40


PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap.
S4.000	S4.2	60 minute 10 year Winter I+0%	101.350	100.186	-0.114	0.000	0.13
S4.001	S4.1	60 minute 10 year Summer I+0%	101.300	100.021	-0.089	0.000	0.35
S3.001	S4.0	60 minute 10 year Winter I+0%	100.600	99.934	0.259	0.000	0.07
S3.002	S3.0	60 minute 10 year Summer I+0%	99.900	98.484	-0.176	0.000	0.10
S5.000	S2.3	240 minute 10 year Winter I+0%	99.000	98.314	0.214	0.000	0.15
S5.001	S2.2	240 minute 10 year Winter I+0%	99.400	98.313	0.348	0.000	0.33
S5.002	S2.1	240 minute 10 year Winter I+0%	99.290	98.312	0.377	0.000	0.06
S3.003	S2.0	60 minute 10 year Summer I+0%	98.600	97.492	-0.148	0.000	0.49
S3.004	S1	1440 minute 10 year Winter I+0%	97.650	96.536	0.086	0.000	0.00

PN	US/MH Name	Overflow (l/s)	Maximum Vol (m ³)	Half Drain Time (mins)	Pipe Flow (l/s)	Status

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - HYBRID INF. BASIN	
Date 18/01/2024 14:31 File 8211067 - OPTION 2 - OU...	Designed by S McNair Checked by C Salt	
Micro Drainage	Network 2020.1.3	

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

PN	US/MH Name	Overflow (l/s)	Maximum Vol (m ³)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S4.000	S4.2		1.344	28	1.8	OK
S4.001	S4.1		1.347	26	8.0	OK
S3.001	S4.0		5.484	24	7.2	SURCHARGED
S3.002	S3.0		0.057		8.9	OK
S5.000	S2.3		0.406		2.0	SURCHARGED
S5.001	S2.2		0.891		3.5	SURCHARGED
S5.002	S2.1		26.903		0.9	SURCHARGED
S3.003	S2.0		0.192		28.7	OK
S3.004	S1		94.405	816	0.0	SURCHARGED

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Micro Drainage	Network 2020.1.3	

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

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 5
Number of Online Controls 3 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details


Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 430500 218950 SP 30500 18950
Data Type Catchment
Cv (Summer) 0.750
Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 60, 120, 240, 360, 480, 960, 1440, 2160,
2880, 4320, 5760
Return Period(s) (years) 2, 10, 30, 100
Climate Change (%) 0, 0, 0, 40


PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap.
S3.000	S5.0	60 minute 30 year Winter I+0%	100.700	100.063	0.303	0.000	0.09
S4.000	S4.2	60 minute 30 year Winter I+0%	101.350	100.194	-0.106	0.000	0.19
S4.001	S4.1	60 minute 30 year Winter I+0%	101.300	100.087	-0.023	0.000	0.42
S3.001	S4.0	60 minute 30 year Winter I+0%	100.600	100.058	0.383	0.000	0.10
S3.002	S3.0	60 minute 30 year Summer I+0%	99.900	98.488	-0.172	0.000	0.13
S5.000	S2.3	360 minute 30 year Winter I+0%	99.000	98.506	0.406	0.000	0.14
S5.001	S2.2	360 minute 30 year Winter I+0%	99.400	98.505	0.540	0.000	0.32
S5.002	S2.1	360 minute 30 year Winter I+0%	99.290	98.504	0.569	0.000	0.07
S3.003	S2.0	60 minute 30 year Summer I+0%	98.600	97.520	-0.120	0.000	0.65
S3.004	S1	960 minute 30 year Winter I+0%	97.650	96.599	0.149	0.000	0.00

PN	US/MH Name	Overflow (l/s)	Maximum Vol (m ³)	Half Drain Pipe Time (mins)	Pipe Flow (l/s)	Status
S3.000	S5.0		0.592		2.8	SURCHARGED

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

PN	US/MH Name	Overflow (l/s)	Maximum Vol (m ³)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S4.000	S4.2		1.655	28	2.7	OK
S4.001	S4.1		2.826	20	9.7	OK
S3.001	S4.0		7.846	32	9.5	SURCHARGED
S3.002	S3.0		0.063		10.9	OK
S5.000	S2.3		0.624		2.0	SURCHARGED
S5.001	S2.2		1.108		3.5	SURCHARGED
S5.002	S2.1		36.706		1.0	SURCHARGED
S3.003	S2.0		0.238		37.6	OK
S3.004	S1		121.293	1264	0.0	SURCHARGED

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

Synthetic Rainfall Details


Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 430500 218950 SP 30500 18950
Data Type Catchment
Cv (Summer) 0.750
Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 60, 120, 240, 360, 480, 960, 1440, 2160,
2880, 4320, 5760
Return Period(s) (years) 2, 10, 30, 100
Climate Change (%) 0, 0, 0, 40


PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap.
S3.000	S5.0	60 minute 100 year Summer I+40%	100.700	100.104	0.344	0.000	0.18
S4.000	S4.2	60 minute 100 year Winter I+40%	101.350	100.252	-0.048	0.000	0.45
S4.001	S4.1	60 minute 100 year Winter I+40%	101.300	100.227	0.117	0.000	0.56
S3.001	S4.0	60 minute 100 year Summer I+40%	100.600	100.094	0.419	0.000	0.27
S3.002	S3.0	60 minute 100 year Summer I+40%	99.900	98.533	-0.127	0.000	0.37
S5.000	S2.3	60 minute 100 year Winter I+40%	99.000	98.769	0.669	0.000	0.83
S5.001	S2.2	60 minute 100 year Winter I+40%	99.400	98.689	0.724	0.000	1.78
S5.002	S2.1	120 minute 100 year Winter I+40%	99.290	98.631	0.696	0.000	1.38
S3.003	S2.0	60 minute 100 year Summer I+40%	98.600	97.681	0.041	0.000	1.28
S3.004	S1	960 minute 100 year Winter I+40%	97.650	96.884	0.434	0.000	0.00

PN	US/MH Name	Overflow (l/s)	Maximum Vol (m ³)	Half Drain Pipe Time (mins)	Pipe Flow (l/s)	Status
S3.000	S5.0		0.638		5.8	SURCHARGED

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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

PN	US/MH Name	Overflow (l/s)	Maximum Vol (m ³)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S4.000	S4.2		3.845	16	6.3	OK
S4.001	S4.1		6.110	24	12.9	SURCHARGED
S3.001	S4.0		8.499	46	26.2	SURCHARGED
S3.002	S3.0		0.121		31.9	OK
S5.000	S2.3		0.920		11.3	FLOOD RISK
S5.001	S2.2		1.316		19.3	SURCHARGED
S5.002	S2.1		42.303		19.5	SURCHARGED
S3.003	S2.0		0.847		74.4	SURCHARGED
S3.004	S1		255.977	1952	0.0	SURCHARGED

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Micro Drainage	Source Control 2020.1.3	

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 1893 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
60 min Summer	97.807	0.407	0.2	29.0	O K
120 min Summer	97.884	0.484	0.2	34.5	O K
180 min Summer	97.933	0.533	0.2	38.0	O K
240 min Summer	97.968	0.568	0.2	40.5	O K
360 min Summer	98.012	0.612	0.2	43.6	O K
480 min Summer	98.036	0.636	0.2	45.3	O K
600 min Summer	98.049	0.649	0.2	46.3	O K
720 min Summer	98.055	0.655	0.2	46.7	O K
960 min Summer	98.055	0.655	0.2	46.6	O K
1440 min Summer	98.028	0.628	0.2	44.7	O K
2160 min Summer	97.985	0.585	0.2	41.7	O K
2880 min Summer	97.950	0.550	0.2	39.2	O K
4320 min Summer	97.894	0.494	0.2	35.2	O K
5760 min Summer	97.851	0.451	0.2	32.2	O K
60 min Winter	97.857	0.457	0.2	32.5	O K
120 min Winter	97.944	0.544	0.2	38.8	O K
180 min Winter	98.001	0.601	0.2	42.8	O K
240 min Winter	98.041	0.641	0.2	45.7	O K
360 min Winter	98.092	0.692	0.2	49.3	O K
480 min Winter	98.122	0.722	0.3	51.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
60 min Summer	60.004	0.0	72
120 min Summer	36.232	0.0	130
180 min Summer	26.997	0.0	190
240 min Summer	21.858	0.0	250
360 min Summer	16.102	0.0	368
480 min Summer	12.880	0.0	486
600 min Summer	10.784	0.0	606
720 min Summer	9.303	0.0	724
960 min Summer	7.328	0.0	962
1440 min Summer	5.190	0.0	1396
2160 min Summer	3.663	0.0	1712
2880 min Summer	2.865	0.0	2080
4320 min Summer	2.038	0.0	2896
5760 min Summer	1.612	0.0	3696
60 min Winter	60.004	0.0	70
120 min Winter	36.232	0.0	128
180 min Winter	26.997	0.0	186
240 min Winter	21.858	0.0	246
360 min Winter	16.102	0.0	362
480 min Winter	12.880	0.0	478

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Micro Drainage Source Control 2020.1.3

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
600 min Winter	98.139	0.739	0.3	52.6	O K
720 min Winter	98.148	0.748	0.3	53.3	O K
960 min Winter	98.152	0.752	0.3	53.6	O K
1440 min Winter	98.131	0.731	0.3	52.1	O K
2160 min Winter	98.079	0.679	0.2	48.4	O K
2880 min Winter	98.037	0.637	0.2	45.4	O K
4320 min Winter	97.963	0.563	0.2	40.1	O K
5760 min Winter	97.900	0.500	0.2	35.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
600 min Winter	10.784	0.0	596
720 min Winter	9.303	0.0	710
960 min Winter	7.328	0.0	940
1440 min Winter	5.191	0.0	1384
2160 min Winter	3.663	0.0	1964
2880 min Winter	2.865	0.0	2224
4320 min Winter	2.038	0.0	3124
5760 min Winter	1.612	0.0	4032

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Micro Drainage	Source Control 2020.1.3
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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 430500 218950 SP 30500 18950
Data Type	Catchment
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	60
Longest Storm (mins)	5760
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.066

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From: To:	(ha)	From: To:	(ha)	From: To:	(ha)
0	4 0.022	4	8 0.022	8	12 0.022

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Micro Drainage	Source Control 2020.1.3
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Model Details

Storage is Online Cover Level (m) 98.800

Cellular Storage Structure

Invert Level (m) 97.400 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.01800 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.01800

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	75.0	75.0	0.900	0.0	103.0
0.800	75.0	103.0			


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Micro Drainage	Source Control 2020.1.3	

Summary of Results for 30 year Return Period

Half Drain Time : 1062 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
60 min Summer	97.618	0.218	0.2	15.5	O K
120 min Summer	97.661	0.261	0.2	18.6	O K
180 min Summer	97.685	0.285	0.2	20.3	O K
240 min Summer	97.702	0.302	0.2	21.5	O K
360 min Summer	97.720	0.320	0.2	22.8	O K
480 min Summer	97.728	0.328	0.2	23.4	O K
600 min Summer	97.730	0.330	0.2	23.5	O K
720 min Summer	97.729	0.329	0.2	23.4	O K
960 min Summer	97.721	0.321	0.2	22.9	O K
1440 min Summer	97.703	0.303	0.2	21.6	O K
2160 min Summer	97.678	0.278	0.2	19.8	O K
2880 min Summer	97.656	0.256	0.2	18.3	O K
4320 min Summer	97.620	0.220	0.2	15.7	O K
5760 min Summer	97.591	0.191	0.2	13.6	O K
60 min Winter	97.645	0.245	0.2	17.5	O K
120 min Winter	97.694	0.294	0.2	20.9	O K
180 min Winter	97.722	0.322	0.2	23.0	O K
240 min Winter	97.741	0.341	0.2	24.3	O K
360 min Winter	97.764	0.364	0.2	25.9	O K
480 min Winter	97.775	0.375	0.2	26.7	O K


Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
60 min Summer	32.620	0.0	70
120 min Summer	19.975	0.0	130
180 min Summer	14.907	0.0	188
240 min Summer	12.068	0.0	248
360 min Summer	8.898	0.0	366
480 min Summer	7.129	0.0	484
600 min Summer	5.980	0.0	602
720 min Summer	5.169	0.0	720
960 min Summer	4.089	0.0	844
1440 min Summer	2.917	0.0	1084
2160 min Summer	2.081	0.0	1476
2880 min Summer	1.643	0.0	1880
4320 min Summer	1.188	0.0	2688
5760 min Summer	0.953	0.0	3464
60 min Winter	32.620	0.0	70
120 min Winter	19.975	0.0	128
180 min Winter	14.907	0.0	184
240 min Winter	12.068	0.0	242
360 min Winter	8.898	0.0	358
480 min Winter	7.129	0.0	474

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Micro Drainage	Source Control 2020.1.3	

Summary of Results for 30 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
600 min Winter	97.779	0.379	0.2	27.0	O K
720 min Winter	97.780	0.380	0.2	27.0	O K
960 min Winter	97.773	0.373	0.2	26.6	O K
1440 min Winter	97.749	0.349	0.2	24.9	O K
2160 min Winter	97.717	0.317	0.2	22.6	O K
2880 min Winter	97.686	0.286	0.2	20.4	O K
4320 min Winter	97.632	0.232	0.2	16.5	O K
5760 min Winter	97.587	0.187	0.2	13.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
600 min Winter	5.980	0.0	588
720 min Winter	5.169	0.0	700
960 min Winter	4.089	0.0	916
1440 min Winter	2.917	0.0	1154
2160 min Winter	2.081	0.0	1604
2880 min Winter	1.643	0.0	2052
4320 min Winter	1.188	0.0	2904
5760 min Winter	0.953	0.0	3704

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Micro Drainage		Source Control 2020.1.3


Rainfall Details

Rainfall Model	FEH
Return Period (years)	30
FEH Rainfall Version	2013
Site Location	GB 430500 218950 SP 30500 18950
Data Type	Catchment
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	60
Longest Storm (mins)	5760
Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.066

Time (mins)		Area	Time (mins)		Area	Time (mins)		Area
From:	To:	(ha)	From:	To:	(ha)	From:	To:	(ha)
0	4	0.022	4	8	0.022	8	12	0.022

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Micro Drainage	Source Control 2020.1.3
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Model Details

Storage is Online Cover Level (m) 98.800

Cellular Storage Structure

Invert Level (m) 97.400 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.01800 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.01800

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	75.0	75.0	0.900	0.0	103.0
0.800	75.0	103.0			


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Micro Drainage	Source Control 2020.1.3	

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 1554 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
60 min Summer	97.631	0.431	0.1	9.2	O K
120 min Summer	97.711	0.511	0.1	10.9	O K
180 min Summer	97.762	0.562	0.1	12.0	O K
240 min Summer	97.798	0.598	0.1	12.8	O K
360 min Summer	97.841	0.641	0.1	13.7	O K
480 min Summer	97.864	0.664	0.1	14.2	O K
600 min Summer	97.875	0.675	0.1	14.4	O K
720 min Summer	97.879	0.679	0.1	14.5	O K
960 min Summer	97.872	0.672	0.1	14.4	O K
1440 min Summer	97.841	0.641	0.1	13.7	O K
2160 min Summer	97.798	0.598	0.1	12.8	O K
2880 min Summer	97.761	0.561	0.1	12.0	O K
4320 min Summer	97.703	0.503	0.1	10.7	O K
5760 min Summer	97.657	0.457	0.1	9.8	O K
60 min Winter	97.683	0.483	0.1	10.3	O K
120 min Winter	97.775	0.575	0.1	12.3	O K
180 min Winter	97.833	0.633	0.1	13.5	O K
240 min Winter	97.874	0.674	0.1	14.4	O K
360 min Winter	97.925	0.725	0.1	15.5	O K
480 min Winter	97.953	0.753	0.1	16.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
60 min Summer	60.004	0.0	70
120 min Summer	36.232	0.0	130
180 min Summer	26.997	0.0	190
240 min Summer	21.858	0.0	248
360 min Summer	16.102	0.0	368
480 min Summer	12.880	0.0	486
600 min Summer	10.784	0.0	604
720 min Summer	9.303	0.0	724
960 min Summer	7.328	0.0	960
1440 min Summer	5.190	0.0	1222
2160 min Summer	3.663	0.0	1584
2880 min Summer	2.865	0.0	1992
4320 min Summer	2.038	0.0	2812
5760 min Summer	1.612	0.0	3632
60 min Winter	60.004	0.0	70
120 min Winter	36.232	0.0	128
180 min Winter	26.997	0.0	186
240 min Winter	21.858	0.0	244
360 min Winter	16.102	0.0	360
480 min Winter	12.880	0.0	476

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - P39-40 CRATES 1:100	
Date 18/01/2024 14:35 File 8211067 - OPTION 2 - PL...	Designed by S McNair Checked by C Salt	
Micro Drainage	Source Control 2020.1.3	

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
600 min Winter	97.968	0.768	0.1	16.4	O K
720 min Winter	97.975	0.775	0.1	16.6	O K
960 min Winter	97.973	0.773	0.1	16.5	O K
1440 min Winter	97.942	0.742	0.1	15.9	O K
2160 min Winter	97.889	0.689	0.1	14.7	O K
2880 min Winter	97.843	0.643	0.1	13.7	O K
4320 min Winter	97.763	0.563	0.1	12.0	O K
5760 min Winter	97.696	0.496	0.1	10.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
600 min Winter	10.784	0.0	592
720 min Winter	9.303	0.0	706
960 min Winter	7.328	0.0	932
1440 min Winter	5.191	0.0	1356
2160 min Winter	3.663	0.0	1684
2880 min Winter	2.865	0.0	2140
4320 min Winter	2.038	0.0	3036
5760 min Winter	1.612	0.0	3920

Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - P39-40 CRATES 1:100
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Micro Drainage	Source Control 2020.1.3
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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 430500 218950 SP 30500 18950
Data Type	Catchment
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	60
Longest Storm (mins)	5760
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.021

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From: To:	(ha)	From: To:	(ha)	From: To:	(ha)
0	4 0.007	4	8 0.007	8	12 0.007

Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - P39-40 CRATES 1:100	
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Micro Drainage	Source Control 2020.1.3
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Model Details

Storage is Online Cover Level (m) 98.400

Cellular Storage Structure

Invert Level (m) 97.200 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.01800 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.01800

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	22.5	22.5	0.900	0.0	40.9
0.800	22.5	40.9			


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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - P39-40 CRATES 1:30	
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Micro Drainage	Source Control 2020.1.3	

Summary of Results for 30 year Return Period

Half Drain Time : 969 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
60 min Summer	97.431	0.231	0.1	4.9	O K
120 min Summer	97.476	0.276	0.1	5.9	O K
180 min Summer	97.501	0.301	0.1	6.4	O K
240 min Summer	97.518	0.318	0.1	6.8	O K
360 min Summer	97.536	0.336	0.1	7.2	O K
480 min Summer	97.544	0.344	0.1	7.3	O K
600 min Summer	97.545	0.345	0.1	7.4	O K
720 min Summer	97.542	0.342	0.1	7.3	O K
960 min Summer	97.534	0.334	0.1	7.1	O K
1440 min Summer	97.515	0.315	0.1	6.7	O K
2160 min Summer	97.489	0.289	0.1	6.2	O K
2880 min Summer	97.467	0.267	0.1	5.7	O K
4320 min Summer	97.429	0.229	0.1	4.9	O K
5760 min Summer	97.399	0.199	0.1	4.3	O K
60 min Winter	97.459	0.259	0.1	5.5	O K
120 min Winter	97.511	0.311	0.1	6.6	O K
180 min Winter	97.540	0.340	0.1	7.3	O K
240 min Winter	97.560	0.360	0.1	7.7	O K
360 min Winter	97.582	0.382	0.1	8.2	O K
480 min Winter	97.593	0.393	0.1	8.4	O K


Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
60 min Summer	32.620	0.0	70
120 min Summer	19.975	0.0	128
180 min Summer	14.907	0.0	188
240 min Summer	12.068	0.0	246
360 min Summer	8.898	0.0	364
480 min Summer	7.129	0.0	482
600 min Summer	5.980	0.0	602
720 min Summer	5.169	0.0	704
960 min Summer	4.089	0.0	806
1440 min Summer	2.917	0.0	1048
2160 min Summer	2.081	0.0	1456
2880 min Summer	1.643	0.0	1856
4320 min Summer	1.188	0.0	2680
5760 min Summer	0.953	0.0	3464
60 min Winter	32.620	0.0	70
120 min Winter	19.975	0.0	126
180 min Winter	14.907	0.0	184
240 min Winter	12.068	0.0	242
360 min Winter	8.898	0.0	358
480 min Winter	7.129	0.0	472

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Micro Drainage	Source Control 2020.1.3	

Summary of Results for 30 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
600 min Winter	97.596	0.396	0.1	8.5	O K
720 min Winter	97.595	0.395	0.1	8.4	O K
960 min Winter	97.586	0.386	0.1	8.3	O K
1440 min Winter	97.562	0.362	0.1	7.7	O K
2160 min Winter	97.527	0.327	0.1	7.0	O K
2880 min Winter	97.495	0.295	0.1	6.3	O K
4320 min Winter	97.440	0.240	0.1	5.1	O K
5760 min Winter	97.395	0.195	0.1	4.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
600 min Winter	5.980	0.0	584
720 min Winter	5.169	0.0	694
960 min Winter	4.089	0.0	904
1440 min Winter	2.917	0.0	1120
2160 min Winter	2.081	0.0	1580
2880 min Winter	1.643	0.0	2024
4320 min Winter	1.188	0.0	2864
5760 min Winter	0.953	0.0	3688

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - P39-40 CRATES 1:30	
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Micro Drainage		Source Control 2020.1.3


Rainfall Details

Rainfall Model	FEH
Return Period (years)	30
FEH Rainfall Version	2013
Site Location	GB 430500 218950 SP 30500 18950
Data Type	Catchment
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	60
Longest Storm (mins)	5760
Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.021

Time (mins)		Area	Time (mins)		Area	Time (mins)		Area
From:	To:	(ha)	From:	To:	(ha)	From:	To:	(ha)
0	4	0.007	4	8	0.007	8	12	0.007

Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - P39-40 CRATES 1:30	
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Micro Drainage	Source Control 2020.1.3
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Model Details

Storage is Online Cover Level (m) 98.400

Cellular Storage Structure

Invert Level (m) 97.200 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.01800 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.01800


Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	22.5	22.5	0.900	0.0	40.9
0.800	22.5	40.9			

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 2257 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max E Outflow (l/s)	Max Volume (m ³)	Status
60 min Summer	99.678	0.628	0.0	0.8	0.8	131.8	O K
120 min Summer	99.797	0.747	0.0	0.9	0.9	156.9	O K
180 min Summer	99.875	0.825	0.0	0.9	0.9	173.2	O K
240 min Summer	99.930	0.880	0.0	0.9	0.9	184.7	O K
360 min Summer	99.999	0.949	0.0	1.0	1.0	199.3	O K
480 min Summer	100.039	0.989	0.0	1.0	1.0	207.7	O K
600 min Summer	100.062	1.012	0.0	1.0	1.0	212.5	O K
720 min Summer	100.074	1.024	0.0	1.0	1.0	215.0	O K
960 min Summer	100.077	1.027	0.0	1.0	1.0	215.5	O K
1440 min Summer	100.042	0.992	0.0	1.0	1.0	208.3	O K
2160 min Summer	99.968	0.918	0.0	0.9	0.9	192.6	O K
2880 min Summer	99.909	0.859	0.0	0.9	0.9	180.4	O K
4320 min Summer	99.833	0.783	0.0	0.9	0.9	164.4	O K
5760 min Summer	99.779	0.729	0.0	0.9	0.9	153.1	O K
60 min Winter	99.755	0.705	0.0	0.9	0.9	148.0	O K
120 min Winter	99.891	0.841	0.0	0.9	0.9	176.6	O K
180 min Winter	99.979	0.929	0.0	0.9	0.9	195.1	O K
240 min Winter	100.042	0.992	0.0	1.0	1.0	208.4	O K
360 min Winter	100.124	1.074	0.0	1.0	1.0	225.5	O K
480 min Winter	100.172	1.122	0.0	1.0	1.0	235.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
60 min Summer	60.004	0.0	123.6	72
120 min Summer	36.232	0.0	127.1	130
180 min Summer	26.997	0.0	131.2	190
240 min Summer	21.858	0.0	135.6	250
360 min Summer	16.102	0.0	141.3	368
480 min Summer	12.880	0.0	144.8	488
600 min Summer	10.784	0.0	146.9	606
720 min Summer	9.303	0.0	148.3	726
960 min Summer	7.328	0.0	149.5	964
1440 min Summer	5.190	0.0	149.0	1440
2160 min Summer	3.663	0.0	271.0	1824
2880 min Summer	2.865	0.0	267.0	2196
4320 min Summer	2.038	0.0	255.6	2988
5760 min Summer	1.612	0.0	348.0	3816
60 min Winter	60.004	0.0	125.5	70
120 min Winter	36.232	0.0	131.6	128
180 min Winter	26.997	0.0	138.2	186
240 min Winter	21.858	0.0	142.9	246
360 min Winter	16.102	0.0	148.8	362
480 min Winter	12.880	0.0	152.3	480

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Micro Drainage		Source Control 2020.1.3

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m ³)	Status
600 min Winter	100.201	1.151	0.0	1.0	1.0	241.6	O K
720 min Winter	100.217	1.167	0.0	1.0	1.0	245.1	O K
960 min Winter	100.228	1.178	0.0	1.0	1.0	247.3	O K
1440 min Winter	100.205	1.155	0.0	1.0	1.0	242.4	O K
2160 min Winter	100.134	1.084	0.0	1.0	1.0	227.7	O K
2880 min Winter	100.064	1.014	0.0	1.0	1.0	213.0	O K
4320 min Winter	99.962	0.912	0.0	0.9	0.9	191.4	O K
5760 min Winter	99.886	0.836	0.0	0.9	0.9	175.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
600 min Winter	10.784	0.0	154.4	596
720 min Winter	9.303	0.0	155.7	712
960 min Winter	7.328	0.0	156.6	942
1440 min Winter	5.191	0.0	155.1	1392
2160 min Winter	3.663	0.0	281.8	2024
2880 min Winter	2.865	0.0	281.0	2288
4320 min Winter	2.038	0.0	271.1	3208
5760 min Winter	1.612	0.0	389.9	4144

Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - CRATES SW CATCHMENT
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Micro Drainage	Source Control 2020.1.3
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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 430500 218950 SP 30500 18950
Data Type	Catchment
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	60
Longest Storm (mins)	5760
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.300

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From: To:	(ha)	From: To:	(ha)	From: To:	(ha)
0	4 0.100	4	8 0.100	8	12 0.100

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - CRATES SW CATCHMENT	
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Micro Drainage	Source Control 2020.1.3	

Model Details

Storage is Online Cover Level (m) 102.350

Cellular Storage Structure

Invert Level (m) 99.050 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	221.0	221.0	1.300	0.0	293.0
1.200	221.0	293.0			


Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0045-1000-1200-1000
 Design Head (m) 1.200
 Design Flow (l/s) 1.0
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available Yes
 Diameter (mm) 45
 Invert Level (m) 98.915
 Minimum Outlet Pipe Diameter (mm) 75
 Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.200	1.0
Flush-Flo™	0.196	0.7
Kick-Flo®	0.398	0.6
Mean Flow over Head Range	-	0.8

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.7	1.200	1.0	3.000	1.5	7.000	2.2
0.200	0.7	1.400	1.1	3.500	1.6	7.500	2.3
0.300	0.7	1.600	1.1	4.000	1.7	8.000	2.4
0.400	0.6	1.800	1.2	4.500	1.8	8.500	2.4
0.500	0.7	2.000	1.3	5.000	1.9	9.000	2.5
0.600	0.7	2.200	1.3	5.500	2.0	9.500	2.6
0.800	0.8	2.400	1.4	6.000	2.1		
1.000	0.9	2.600	1.4	6.500	2.2		


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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - BASIN SW CATCHMENT	
Date 18/01/2024 14:59 File 8211067 - OPTION 2 - At...	Designed by S McNair Checked by C Salt	
Micro Drainage		Source Control 2020.1.3

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 2242 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m ³)	Status
60 min Summer	97.504	0.404	0.0	1.0	1.0	131.5	O K
120 min Summer	97.572	0.472	0.0	1.0	1.0	156.5	O K
180 min Summer	97.614	0.514	0.0	1.0	1.0	172.6	O K
240 min Summer	97.643	0.543	0.0	1.0	1.0	183.9	O K
360 min Summer	97.679	0.579	0.0	1.0	1.0	198.2	O K
480 min Summer	97.699	0.599	0.0	1.0	1.0	206.2	O K
600 min Summer	97.710	0.610	0.0	1.0	1.0	210.6	O K
720 min Summer	97.715	0.615	0.0	1.0	1.0	212.8	O K
960 min Summer	97.715	0.615	0.0	1.0	1.0	213.0	O K
1440 min Summer	97.696	0.596	0.0	1.0	1.0	205.2	O K
2160 min Summer	97.657	0.557	0.0	1.0	1.0	189.3	O K
2880 min Summer	97.625	0.525	0.0	1.0	1.0	176.8	O K
4320 min Summer	97.578	0.478	0.0	1.0	1.0	158.7	O K
5760 min Summer	97.541	0.441	0.0	1.0	1.0	144.8	O K
60 min Winter	97.548	0.448	0.0	1.0	1.0	147.7	O K
120 min Winter	97.623	0.523	0.0	1.0	1.0	176.1	O K
180 min Winter	97.669	0.569	0.0	1.0	1.0	194.5	O K
240 min Winter	97.702	0.602	0.0	1.0	1.0	207.5	O K
360 min Winter	97.743	0.643	0.0	1.0	1.0	224.3	O K
480 min Winter	97.766	0.666	0.0	1.0	1.0	234.1	O K


Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
60 min Summer	60.004	0.0	134.8	72
120 min Summer	36.232	0.0	154.3	130
180 min Summer	26.997	0.0	153.9	190
240 min Summer	21.858	0.0	152.9	250
360 min Summer	16.102	0.0	151.7	368
480 min Summer	12.880	0.0	151.1	488
600 min Summer	10.784	0.0	150.8	606
720 min Summer	9.303	0.0	150.6	726
960 min Summer	7.328	0.0	150.4	964
1440 min Summer	5.190	0.0	149.9	1442
2160 min Summer	3.663	0.0	296.6	1860
2880 min Summer	2.865	0.0	294.5	2224
4320 min Summer	2.038	0.0	271.1	3028
5760 min Summer	1.612	0.0	348.1	3864
60 min Winter	60.004	0.0	151.0	70
120 min Winter	36.232	0.0	153.9	128
180 min Winter	26.997	0.0	152.7	188
240 min Winter	21.858	0.0	152.0	246
360 min Winter	16.102	0.0	151.9	362
480 min Winter	12.880	0.0	152.4	480

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Micro Drainage		Source Control 2020.1.3

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
600 min Winter	97.780	0.680	0.0	1.0	1.0	239.8	O K
720 min Winter	97.788	0.688	0.0	1.0	1.0	243.1	O K
960 min Winter	97.791	0.691	0.0	1.0	1.0	244.7	O K
1440 min Winter	97.778	0.678	0.0	1.0	1.0	238.9	O K
2160 min Winter	97.740	0.640	0.0	1.0	1.0	223.2	O K
2880 min Winter	97.701	0.601	0.0	1.0	1.0	207.2	O K
4320 min Winter	97.642	0.542	0.0	1.0	1.0	183.7	O K
5760 min Winter	97.592	0.492	0.0	1.0	1.0	164.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
600 min Winter	10.784	0.0	153.3	596
720 min Winter	9.303	0.0	154.3	714
960 min Winter	7.328	0.0	155.8	944
1440 min Winter	5.191	0.0	155.7	1396
2160 min Winter	3.663	0.0	306.5	2036
2880 min Winter	2.865	0.0	299.1	2336
4320 min Winter	2.038	0.0	279.3	3244
5760 min Winter	1.612	0.0	389.8	4160

Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - BASIN SW CATCHMENT	
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Micro Drainage	Source Control 2020.1.3
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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 430500 218950 SP 30500 18950
Data Type	Catchment
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	60
Longest Storm (mins)	5760
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.300

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From:	To: (ha)	From:	To: (ha)	From:	To: (ha)
0	4 0.100	4	8 0.100	8	12 0.100

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 2 - BASIN SW CATCHMENT	
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Micro Drainage	Source Control 2020.1.3	

Model Details

Storage is Online Cover Level (m) 98.100

Infiltration Basin Structure

Invert Level (m) 97.100 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 1.00
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	287.1	0.700	427.1	1.000	495.6

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0050-1000-0750-1000
 Design Head (m) 0.750
 Design Flow (l/s) 1.0
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available Yes
 Diameter (mm) 50
 Invert Level (m) 97.050
 Minimum Outlet Pipe Diameter (mm) 75
 Suggested Manhole Diameter (mm) 1200

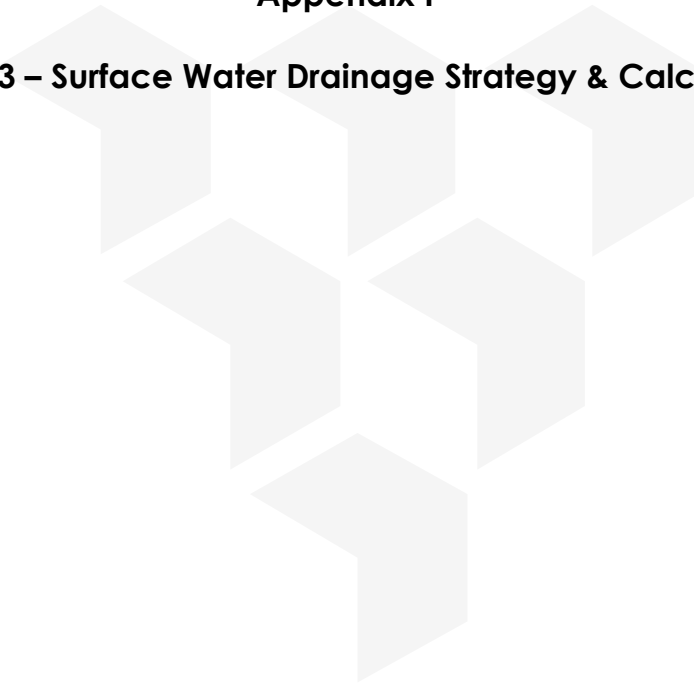
Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.750	1.0
Flush-Flo™	0.222	1.0
Kick-Flo®	0.445	0.8
Mean Flow over Head Range	-	0.9

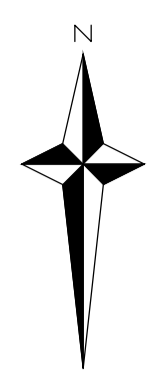
The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.9	1.200	1.2	3.000	1.9	7.000	2.8
0.200	1.0	1.400	1.3	3.500	2.0	7.500	2.9
0.300	0.9	1.600	1.4	4.000	2.1	8.000	2.9
0.400	0.9	1.800	1.5	4.500	2.3	8.500	3.0
0.500	0.8	2.000	1.6	5.000	2.4	9.000	3.1
0.600	0.9	2.200	1.6	5.500	2.5	9.500	3.2
0.800	1.0	2.400	1.7	6.000	2.6		
1.000	1.1	2.600	1.7	6.500	2.7		

Appendix P

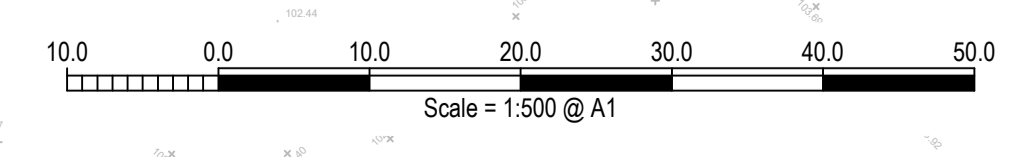
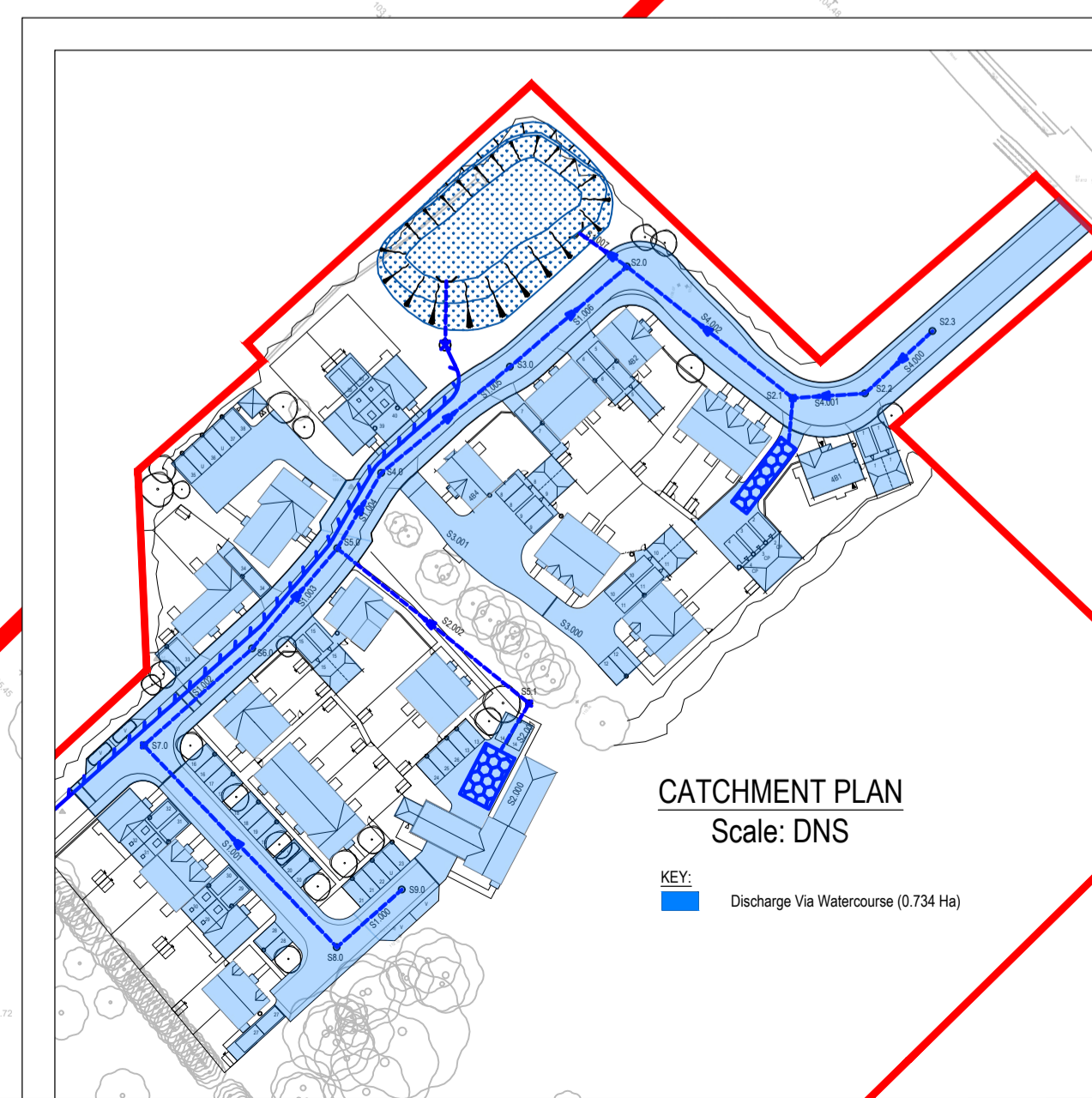
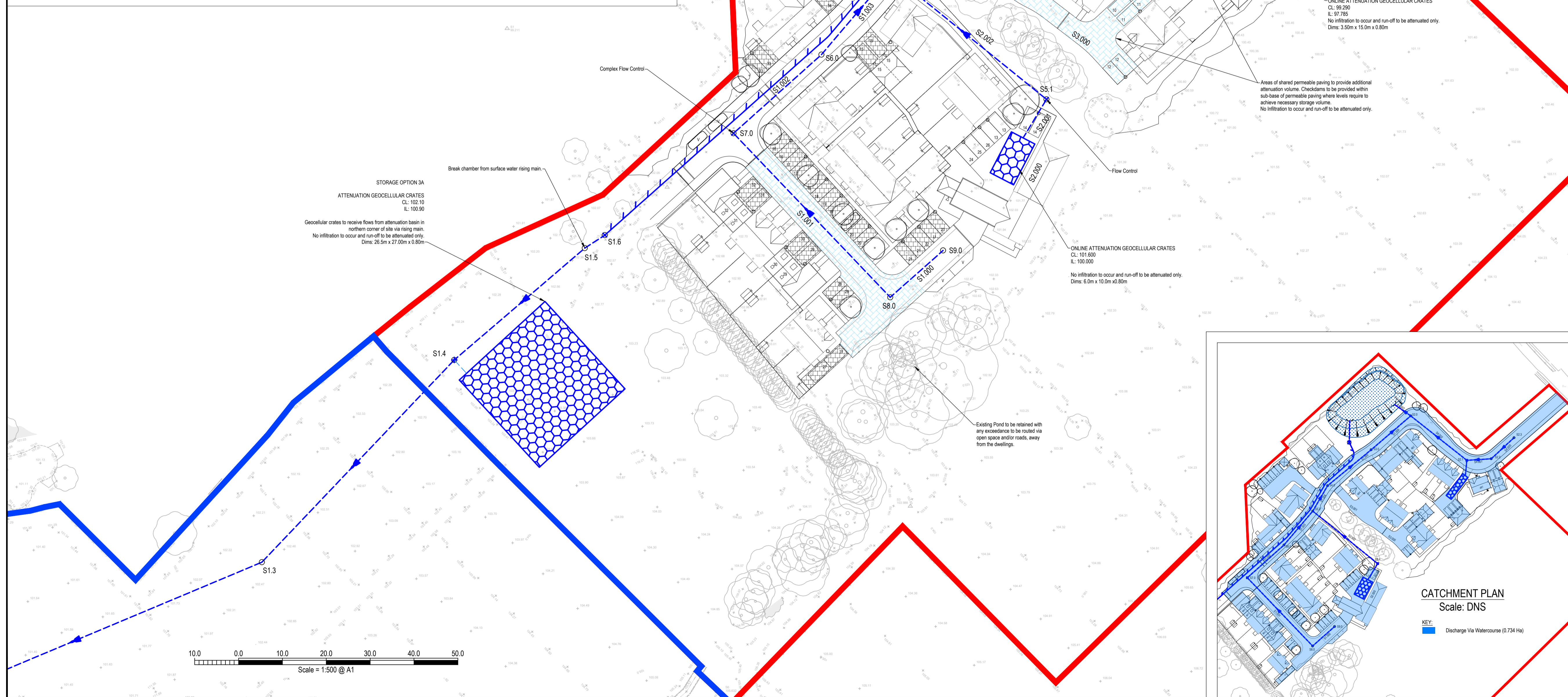
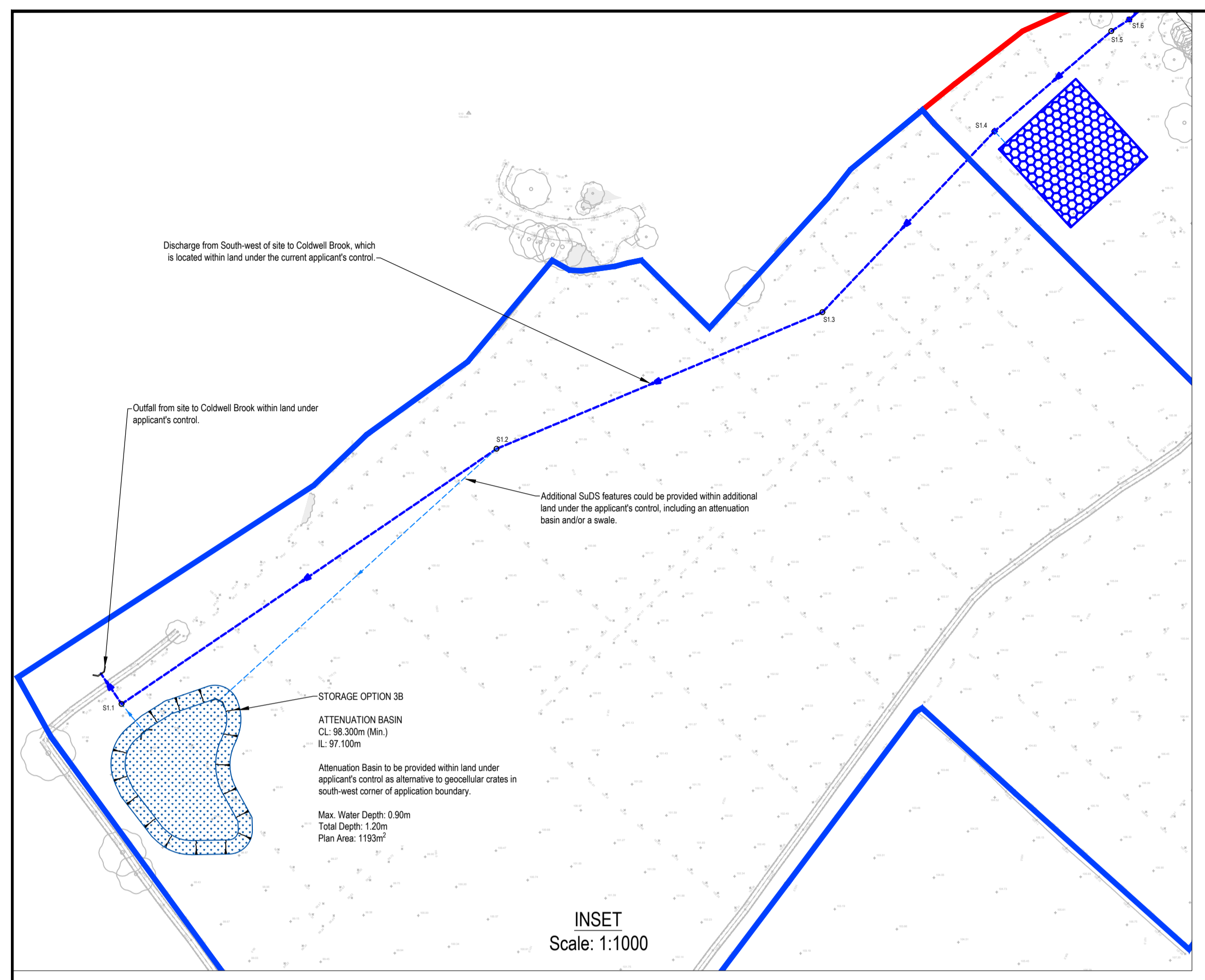
Option 3 – Surface Water Drainage Strategy & Calculations





- NOTES**
- Dimensions not to be scaled from this drawing for construction purposes.
 - This drawing should be read in conjunction with the associated Flood Risk Assessment and all relevant standards.
 - All drainage features are indicative only for preliminary design purposes and are subject to detailed design. All levels shown in meters AOD.
 - Site Layout taken from Thrive Architects drawing OBSI160824 CMP_01 P10, dated June 2022.
 - Topographical levels taken from Greenhatch group drawing 42917_T1, dated February 2022.

- KEY**
- Application Boundary
 - Land Under Applicant's Control
 - Surface Water Sewer
 - Surface Water Rising Main
 - - - Surface Water Sewer Alternative Route
 - Manhole Chamber
 - Flow Control Chamber
 - ⌒ Headwall
 - MicroDrainage Pipe Reference Direction of Flow
 -
 -
 -
 -



P2	Issued with Technical Note.	18/01/2024	JB/CS
Rev.	Description	Date	Chkd

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 Tel: (01235) 515550 Fax: (01235) 817799
 postbox@glanvillegroup.com www.glanvillegroup.com

Client: Obsidian Strategic Asset Management

Project: Land off London Lane
 Ascott-under-Wychwood

Title: Outline Surface Water Drainage Strategy
 Option 3 - Discharge to Watercourse

Project Engineer: S McNair Scale: 1:500 @ A1
 Project Director: J Birch Date: January 2024
 Status: PLANNING

Drawing No. 8211067 - SK09 Rev P2

Cornerstone Court
62 Foxhall Road
Didcot OX11 7AD

Land West of London Lane
Ascott-under-Wychwood
GF Run-off - Developed Area



Date 18/01/2024 13:06
File 8211067 - OPTION 2 - Ge...

Designed by S McNair
Checked by C Salt

Micro Drainage Source Control 2020.1.3

ICP SUDS Mean Annual Flood

Input


Return Period (years)	100	Soil	0.450
Area (ha)	1.339	Urban	0.000
SAAR (mm)	750	Region Number	Region 6

Results 1/s

QBAR Rural 6.4
QBAR Urban 6.4

Q100 years 20.3

Q1 year 5.4
Q30 years 14.5
Q100 years 20.3

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Micro Drainage	Network 2020.1.3	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD







FEH Rainfall Model

Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 430500 218950 SP 30500 18950
Data Type	Catchment
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.900
PIMP (%)	100
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.200
Maximum Backdrop Height (m)	1.500
Min Design Depth for Optimisation (m)	1.200
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	500

Designed with Level Soffits


Network Design Table for Storm

« - Indicates pipe capacity < flow












PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	21.113	0.150	140.8	0.018	15.00	0.0	0.600	o	150	Pipe/Conduit	
S1.001	53.934	0.360	149.8	0.010	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.002	29.878	0.135	221.3	0.102	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.003	22.354	0.545	41.0	0.039	0.00	0.0	0.600	o	225	Pipe/Conduit	
S2.000	11.174	2.000	5.6	0.000	15.00	0.0	0.600	o	150	Pipe/Conduit	
S2.001	9.699	0.070	138.6	0.061	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	15.42	100.800	0.018	0.0	0.0	0.0	0.85	14.9	2.9
S1.001	50.00	16.51	100.650	0.028	0.0	0.0	0.0	0.82	14.5	4.5
S1.002	50.00	17.08	100.215	0.130	0.0	0.0	0.0	0.87	34.8	21.1
S1.003	50.00	17.27	100.080	0.169	0.0	0.0	0.0	2.05	81.5	27.5
S2.000	50.00	15.04	102.000	0.000	0.0	0.0	0.0	4.29	75.9	0.0
S2.001	50.00	15.23	100.000	0.061	0.0	0.0	0.0	0.85	15.1	9.9


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Micro Drainage	Network 2020.1.3	

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S2.002	47.265	0.320	147.7	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.004	17.460	0.085	205.4	0.069	0.00	0.0	0.600	o	225	Pipe/Conduit	
S3.000	27.305	0.190	143.7	0.020	15.00	0.0	0.600	o	150	Pipe/Conduit	
S3.001	23.523	0.435	54.1	0.048	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.005	24.370	1.015	24.0	0.115	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.006	32.737	1.020	32.1	0.040	0.00	0.0	0.600	o	225	Pipe/Conduit	
S4.000	19.908	0.135	147.5	0.042	15.00	0.0	0.600	o	150	Pipe/Conduit	
S4.001	3.995	0.030	133.2	0.032	0.00	0.0	0.600	o	150	Pipe/Conduit	
S4.002	43.624	0.295	147.9	0.050	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.007	8.143	0.040	203.6	0.113	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.008	15.567	0.150	103.8	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S2.002	50.00	16.19	99.930	0.061	0.0	0.0	0.0	0.82	14.6	9.9
S1.004	50.00	17.59	99.535	0.299	0.0	0.0	0.0	0.91	36.1<<	48.6
S3.000	50.00	15.54	100.150	0.020	0.0	0.0	0.0	0.84	14.8	3.2
S3.001	50.00	15.83	99.960	0.068	0.0	0.0	0.0	1.37	24.2	11.0
S1.005	50.00	17.74	99.450	0.482	0.0	0.0	0.0	2.68	106.6	78.3
S1.006	50.00	17.97	98.435	0.522	0.0	0.0	0.0	2.32	92.1	84.8
S4.000	50.00	15.40	97.950	0.042	0.0	0.0	0.0	0.83	14.6	6.8
S4.001	50.00	15.48	97.815	0.074	0.0	0.0	0.0	0.87	15.4	12.0
S4.002	50.00	16.36	97.785	0.124	0.0	0.0	0.0	0.82	14.6<<	20.1
S1.007	50.00	18.10	97.340	0.759	0.0	0.0	0.0	1.10	77.6<<	123.3
S1.008	50.00	18.36	96.300	0.759	0.0	0.0	0.0	0.99	17.4<<	123.3

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 3 - WATERCOURSE STRAT.	
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Micro Drainage	Network 2020.1.3	


PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	o	150	S9.0	102.200	100.800	1.250	Open Manhole	1200
S1.001	o	150	S8.0	102.550	100.650	1.750	Open Manhole	1200
S1.002	o	225	S7.0	101.550	100.215	1.110	Open Manhole	1200
S1.003	o	225	S6.0	101.200	100.080	0.895	Open Manhole	1200
S2.000	o	150	SDummy	103.000	102.000	0.850	Open Manhole	300
S2.001	o	150	S5.2	101.600	100.000	1.450	Open Manhole	1200
S2.002	o	150	S5.1	101.600	99.930	1.520	Open Manhole	1200
S1.004	o	225	S5.0	100.700	99.535	0.940	Open Manhole	1200
S3.000	o	150	S4.2	101.350	100.150	1.050	Open Manhole	1200
S3.001	o	150	S4.1	101.300	99.960	1.190	Open Manhole	1200
S1.005	o	225	S4.0	100.600	99.450	0.925	Open Manhole	1200
S1.006	o	225	S3.0	99.900	98.435	1.240	Open Manhole	1200
S4.000	o	150	S2.3	99.000	97.950	0.900	Open Manhole	1200
S4.001	o	150	S2.2	99.400	97.815	1.435	Open Manhole	1200
S4.002	o	150	S2.1	99.290	97.785	1.355	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	21.113	140.8	S8.0	102.550	100.650	1.750	Open Manhole	1200
S1.001	53.934	149.8	S7.0	101.550	100.290	1.110	Open Manhole	1200
S1.002	29.878	221.3	S6.0	101.200	100.080	0.895	Open Manhole	1200
S1.003	22.354	41.0	S5.0	100.700	99.535	0.940	Open Manhole	1200
S2.000	11.174	5.6	S5.2	101.600	100.000	1.450	Open Manhole	1200
S2.001	9.699	138.6	S5.1	101.600	99.930	1.520	Open Manhole	1200
S2.002	47.265	147.7	S5.0	100.700	99.610	0.940	Open Manhole	1200
S1.004	17.460	205.4	S4.0	100.600	99.450	0.925	Open Manhole	1200
S3.000	27.305	143.7	S4.1	101.300	99.960	1.190	Open Manhole	1200
S3.001	23.523	54.1	S4.0	100.600	99.525	0.925	Open Manhole	1200
S1.005	24.370	24.0	S3.0	99.900	98.435	1.240	Open Manhole	1200
S1.006	32.737	32.1	S2.0	98.600	97.415	0.960	Open Manhole	1200
S4.000	19.908	147.5	S2.2	99.400	97.815	1.435	Open Manhole	1200
S4.001	3.995	133.2	S2.1	99.290	97.785	1.355	Open Manhole	1200
S4.002	43.624	147.9	S2.0	98.600	97.490	0.960	Open Manhole	1200

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Micro Drainage	Network 2020.1.3	


PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.007	o	300	S2.0	98.600	97.340	0.960	Open Manhole	1200
S1.008	o	150	S1	97.650	96.300	1.200	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.007	8.143	203.6	S1	97.650	97.300	0.050	Open Manhole	1200
S1.008	15.567	103.8	S	100.000	96.150	3.700	Open Manhole	150


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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	0.018	0.018	0.018
1.001	-	-	100	0.010	0.010	0.010
1.002	-	-	100	0.102	0.102	0.102
1.003	-	-	100	0.039	0.039	0.039
2.000	-	-	100	0.000	0.000	0.000
2.001	-	-	100	0.061	0.061	0.061
2.002	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.069	0.069	0.069
3.000	-	-	100	0.020	0.020	0.020
3.001	-	-	100	0.048	0.048	0.048
1.005	-	-	100	0.115	0.115	0.115
1.006	-	-	100	0.040	0.040	0.040
4.000	-	-	100	0.042	0.042	0.042
4.001	-	-	100	0.032	0.032	0.032
4.002	-	-	100	0.050	0.050	0.050
1.007	-	-	100	0.113	0.113	0.113
1.008	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.759	0.759	0.759

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)
S1.008	S	100.000	96.150	96.150	150	0

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Micro Drainage	Network 2020.1.3	

Online Controls for Storm

Complex Manhole: S7.0, DS/PN: S1.002, Volume (m³): 2.4

Hydro-Brake® Optimum

Unit Reference MD-SHE-0106-5000-0985-5000
 Design Head (m) 0.985
 Design Flow (l/s) 5.0
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available Yes
 Diameter (mm) 106
 Invert Level (m) 100.215
 Minimum Outlet Pipe Diameter (mm) 150
 Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.985	5.0
Flush-Flo™	0.291	5.0
Kick-Flo®	0.631	4.1
Mean Flow over Head Range	-	4.3

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated


Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.6	1.200	5.5	3.000	8.4	7.000	12.6
0.200	4.9	1.400	5.9	3.500	9.1	7.500	13.0
0.300	5.0	1.600	6.3	4.000	9.6	8.000	13.4
0.400	4.9	1.800	6.6	4.500	10.2	8.500	13.8
0.500	4.7	2.000	7.0	5.000	10.7	9.000	14.2
0.600	4.3	2.200	7.3	5.500	11.2	9.500	14.6
0.800	4.5	2.400	7.6	6.000	11.7		
1.000	5.0	2.600	7.9	6.500	12.2		

Weir

Discharge Coef 0.544 Width (m) 1.200 Invert Level (m) 100.950

Hydro-Brake® Optimum Manhole: S5.2, DS/PN: S2.001, Volume (m³): 2.0

Unit Reference MD-SCU-0032-1000-0800-1000
 Design Head (m) 0.800
 Design Flow (l/s) 1.0
 Flush-Flo™ Calculated

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 3 - WATERCOURSE STRAT.	
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Micro Drainage	Network 2020.1.3	

Hydro-Brake® Optimum Manhole: S5.2, DS/PN: S2.001, Volume (m³): 2.0

Objective	Linear discharge profile
Application	Surface
Sump Available	Yes
Diameter (mm)	32
Invert Level (m)	100.000
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.800	1.0
Flush-Flo™	0.047	0.3
Kick-Flo®	0.047	0.3
Mean Flow over Head Range	-	0.7

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated


Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.4	1.200	1.2	3.000	1.8	7.000	2.7
0.200	0.5	1.400	1.3	3.500	2.0	7.500	2.8
0.300	0.6	1.600	1.4	4.000	2.1	8.000	2.9
0.400	0.7	1.800	1.4	4.500	2.2	8.500	3.0
0.500	0.8	2.000	1.5	5.000	2.3	9.000	3.1
0.600	0.9	2.200	1.6	5.500	2.4	9.500	3.1
0.800	1.0	2.400	1.6	6.000	2.5		
1.000	1.1	2.600	1.7	6.500	2.6		

Complex Manhole: S2.1, DS/PN: S4.002, Volume (m³): 1.8

Hydro-Brake® Optimum

Unit Reference	MD-SHE-0049-1000-0800-1000
Design Head (m)	0.800
Design Flow (l/s)	1.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	49
Invert Level (m)	97.785
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.800	1.0
Flush-Flo™	0.215	0.9

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Hydro-Brake® Optimum

Control Points	Head (m)	Flow (l/s)
Kick-Flo®	0.437	0.8
Mean Flow over Head Range	-	0.8

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.8	1.200	1.2	3.000	1.8	7.000	2.7
0.200	0.9	1.400	1.3	3.500	1.9	7.500	2.8
0.300	0.9	1.600	1.4	4.000	2.1	8.000	2.9
0.400	0.8	1.800	1.4	4.500	2.2	8.500	2.9
0.500	0.8	2.000	1.5	5.000	2.3	9.000	3.0
0.600	0.9	2.200	1.6	5.500	2.4	9.500	3.1
0.800	1.0	2.400	1.6	6.000	2.5		
1.000	1.1	2.600	1.7	6.500	2.6		

Weir


Discharge Coef 0.544 Width (m) 1.200 Invert Level (m) 98.585

Hydro-Brake® Optimum Manhole: S1, DS/PN: S1.008, Volume (m³): 2.0

Unit Reference	MD-SCU-0075-6000-1050-6000
Design Head (m)	1.050
Design Flow (l/s)	6.0
Flush-Flo™	Calculated
Objective	Linear discharge profile
Application	Surface
Sump Available	Yes
Diameter (mm)	75
Invert Level (m)	96.300
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200


Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.050	6.0
Flush-Flo™	0.102	2.2
Kick-Flo®	0.113	2.2
Mean Flow over Head Range	-	4.1

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 then these storage routing calculations will be invalidated

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Hydro-Brake® Optimum Manhole: S1, DS/PN: S1.008, Volume (m³): 2.0

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.2	1.200	6.4	3.000	9.9	7.000	14.8
0.200	2.8	1.400	6.9	3.500	10.6	7.500	15.3
0.300	3.4	1.600	7.3	4.000	11.3	8.000	15.8
0.400	3.8	1.800	7.7	4.500	12.0	8.500	16.2
0.500	4.2	2.000	8.1	5.000	12.6	9.000	16.7
0.600	4.6	2.200	8.5	5.500	13.2	9.500	17.1
0.800	5.3	2.400	8.9	6.000	13.7		
1.000	5.9	2.600	9.2	6.500	14.3		

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Storage Structures for Storm

Porous Car Park Manhole: S7.0, DS/PN: S1.002

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.8
Membrane Percolation (mm/hr)	1000	Length (m)	37.7
Max Percolation (l/s)	39.8	Slope (1:X)	50.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	100.215	Cap Volume Depth (m)	0.500

Cellular Storage Manhole: S5.2, DS/PN: S2.001

Invert Level (m)	100.000	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	60.0	60.0	0.900	0.0	87.2
0.800	60.0	87.2			

Porous Car Park Manhole: S4.2, DS/PN: S3.000


Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	4.8
Membrane Percolation (mm/hr)	1000	Length (m)	25.5
Max Percolation (l/s)	34.0	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	100.150	Cap Volume Depth (m)	0.500

Porous Car Park Manhole: S4.1, DS/PN: S3.001

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	2.5
Membrane Percolation (mm/hr)	1000	Length (m)	27.0
Max Percolation (l/s)	18.8	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	99.960	Cap Volume Depth (m)	0.500

Porous Car Park Manhole: S4.0, DS/PN: S1.005

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.7
Membrane Percolation (mm/hr)	1000	Length (m)	15.0
Max Percolation (l/s)	23.8	Slope (1:X)	20.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	99.450	Cap Volume Depth (m)	0.500

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Cellular Storage Manhole: S2.1, DS/PN: S4.002


Invert Level (m) 97.785 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	52.5	52.5	0.900	0.0	82.1
0.800	52.5	82.1			

Infiltration Basin Manhole: S1, DS/PN: S1.008

Invert Level (m) 96.300 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 1.00
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	373.6	1.050	620.6	1.350	702.6

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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 Storage Structures 7
Number of Online Controls 4 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0


Synthetic Rainfall Details

Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 430500 218950 SP 30500 18950
Data Type Catchment
Cv (Summer) 0.750
Cv (Winter) 0.840

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


Profile(s) Summer and Winter
Duration(s) (mins) 60, 120, 240, 360, 480, 960, 1440, 2160,
2880, 4320, 5760
Return Period(s) (years) 2, 10, 30, 100
Climate Change (%) 0, 0, 0, 40

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap.
S1.000	S9.0	60 minute 2 year Summer I+0%	102.200	100.830	-0.120	0.000	0.09
S1.001	S8.0	60 minute 2 year Summer I+0%	102.550	100.688	-0.112	0.000	0.14
S1.002	S7.0	60 minute 2 year Winter I+0%	101.550	100.529	0.089	0.000	0.15
S1.003	S6.0	60 minute 2 year Summer I+0%	101.200	100.130	-0.175	0.000	0.11
S2.000	SDummy	60 minute 2 year Summer I+0%	103.000	102.000	-0.150	0.000	0.00
S2.001	S5.2	360 minute 2 year Winter I+0%	101.600	100.146	-0.004	0.000	0.04
S2.002	S5.1	360 minute 2 year Winter I+0%	101.600	99.948	-0.132	0.000	0.03
S1.004	S5.0	60 minute 2 year Summer I+0%	100.700	99.641	-0.119	0.000	0.45
S3.000	S4.2	120 minute 2 year Winter I+0%	101.350	100.173	-0.127	0.000	0.06
S3.001	S4.1	60 minute 2 year Summer I+0%	101.300	100.002	-0.108	0.000	0.17
S1.005	S4.0	60 minute 2 year Summer I+0%	100.600	99.533	-0.142	0.000	0.29
S1.006	S3.0	60 minute 2 year Summer I+0%	99.900	98.530	-0.130	0.000	0.37
S4.000	S2.3	240 minute 2 year Winter I+0%	99.000	98.086	-0.014	0.000	0.10
S4.001	S2.2	240 minute 2 year Winter I+0%	99.400	98.085	0.120	0.000	0.21
S4.002	S2.1	240 minute 2 year Winter I+0%	99.290	98.084	0.149	0.000	0.06
S1.007	S2.0	60 minute 2 year Summer I+0%	98.600	97.532	-0.108	0.000	0.73
S1.008	S1	480 minute 2 year Winter I+0%	97.650	96.576	0.126	0.000	0.20

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

PN	US/MH Name	Overflow (l/s)	Maximum Vol (m ³)	Half Drain Pipe		Status
				Time (mins)	Flow (l/s)	
S1.000	S9.0		0.028		1.2	OK
S1.001	S8.0		0.061		2.0	OK
S1.002	S7.0		3.578	18	5.0	SURCHARGED
S1.003	S6.0		0.119		8.3	OK
S2.000	SDummy		0.000		0.0	OK
S2.001	S5.2		8.506	240	0.5	OK
S2.002	S5.1		0.022		0.5	OK
S1.004	S5.0		0.148		14.6	OK
S3.000	S4.2		0.870	56	0.8	OK
S3.001	S4.1		0.916	26	3.9	OK
S1.005	S4.0		0.311	16	28.3	OK
S1.006	S3.0		0.116		31.8	OK
S4.000	S2.3		0.148		1.4	OK
S4.001	S2.2		0.611		2.3	SURCHARGED
S4.002	S2.1		15.273	212	0.9	SURCHARGED
S1.007	S2.0		0.257		42.4	OK
S1.008	S1		111.654	472	3.2	SURCHARGED

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

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 7
Number of Online Controls 4 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0


Synthetic Rainfall Details

Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 430500 218950 SP 30500 18950
Data Type Catchment
Cv (Summer) 0.750
Cv (Winter) 0.840

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


Profile(s) Summer and Winter
Duration(s) (mins) 60, 120, 240, 360, 480, 960, 1440, 2160,
2880, 4320, 5760
Return Period(s) (years) 2, 10, 30, 100
Climate Change (%) 0, 0, 0, 40

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap.
S1.000	S9.0	60 minute 10 year Winter I+0%	102.200	100.841	-0.109	0.000	0.15
S1.001	S8.0	60 minute 10 year Winter I+0%	102.550	100.829	0.029	0.000	0.22
S1.002	S7.0	60 minute 10 year Winter I+0%	101.550	100.815	0.375	0.000	0.15
S1.003	S6.0	60 minute 10 year Summer I+0%	101.200	100.139	-0.166	0.000	0.16
S2.000	SDummy	60 minute 10 year Summer I+0%	103.000	102.000	-0.150	0.000	0.00
S2.001	S5.2	360 minute 10 year Winter I+0%	101.600	100.236	0.086	0.000	0.04
S2.002	S5.1	360 minute 10 year Winter I+0%	101.600	99.949	-0.131	0.000	0.04
S1.004	S5.0	60 minute 10 year Summer I+0%	100.700	99.682	-0.078	0.000	0.73
S3.000	S4.2	60 minute 10 year Winter I+0%	101.350	100.186	-0.114	0.000	0.13
S3.001	S4.1	60 minute 10 year Summer I+0%	101.300	100.021	-0.089	0.000	0.35
S1.005	S4.0	60 minute 10 year Summer I+0%	100.600	99.567	-0.108	0.000	0.51
S1.006	S3.0	60 minute 10 year Summer I+0%	99.900	98.572	-0.088	0.000	0.65
S4.000	S2.3	240 minute 10 year Winter I+0%	99.000	98.314	0.214	0.000	0.15
S4.001	S2.2	240 minute 10 year Winter I+0%	99.400	98.313	0.348	0.000	0.33
S4.002	S2.1	240 minute 10 year Winter I+0%	99.290	98.312	0.377	0.000	0.06
S1.007	S2.0	60 minute 10 year Summer I+0%	98.600	97.686	0.046	0.000	1.31
S1.008	S1	480 minute 10 year Winter I+0%	97.650	96.710	0.260	0.000	0.24

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

PN	US/MH Name	Overflow (l/s)	Maximum Vol (m ³)	Half Drain Pipe		Status
				Time (mins)	Flow (l/s)	
S1.000	S9.0		0.041		2.2	OK
S1.001	S8.0		0.424		3.2	SURCHARGED
S1.002	S7.0		11.590	38	5.0	SURCHARGED
S1.003	S6.0		0.145		11.7	OK
S2.000	SDummy		0.000		0.0	OK
S2.001	S5.2		13.722	300	0.6	SURCHARGED
S2.002	S5.1		0.025		0.6	OK
S1.004	S5.0		0.289		23.5	OK
S3.000	S4.2		1.344	28	1.8	OK
S3.001	S4.1		1.347	26	8.0	OK
S1.005	S4.0		0.548	10	49.8	OK
S1.006	S3.0		0.187		56.5	OK
S4.000	S2.3		0.406		2.0	SURCHARGED
S4.001	S2.2		0.888		3.5	SURCHARGED
S4.002	S2.1		26.911		0.9	SURCHARGED
S1.007	S2.0		0.871		76.4	SURCHARGED
S1.008	S1		171.732	624	3.9	SURCHARGED

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

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 7
Number of Online Controls 4 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0


Synthetic Rainfall Details

Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 430500 218950 SP 30500 18950
Data Type Catchment
Cv (Summer) 0.750
Cv (Winter) 0.840

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


Profile(s) Summer and Winter
Duration(s) (mins) 60, 120, 240, 360, 480, 960, 1440, 2160,
2880, 4320, 5760
Return Period(s) (years) 2, 10, 30, 100
Climate Change (%) 0, 0, 0, 40

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap.
S1.000	S9.0	60 minute 30 year Winter I+0%	102.200	101.016	0.066	0.000	0.19
S1.001	S8.0	60 minute 30 year Winter I+0%	102.550	101.004	0.204	0.000	0.25
S1.002	S7.0	60 minute 30 year Winter I+0%	101.550	100.972	0.532	0.000	0.33
S1.003	S6.0	60 minute 30 year Summer I+0%	101.200	100.146	-0.159	0.000	0.19
S2.000	SDummy	60 minute 30 year Summer I+0%	103.000	102.000	-0.150	0.000	0.00
S2.001	S5.2	240 minute 30 year Winter I+0%	101.600	100.317	0.167	0.000	0.05
S2.002	S5.1	240 minute 30 year Winter I+0%	101.600	99.951	-0.129	0.000	0.05
S1.004	S5.0	60 minute 30 year Summer I+0%	100.700	99.710	-0.050	0.000	0.93
S3.000	S4.2	60 minute 30 year Winter I+0%	101.350	100.194	-0.106	0.000	0.19
S3.001	S4.1	60 minute 30 year Summer I+0%	101.300	100.034	-0.076	0.000	0.48
S1.005	S4.0	60 minute 30 year Summer I+0%	100.600	99.590	-0.085	0.000	0.67
S1.006	S3.0	60 minute 30 year Summer I+0%	99.900	98.604	-0.056	0.000	0.87
S4.000	S2.3	360 minute 30 year Winter I+0%	99.000	98.507	0.407	0.000	0.14
S4.001	S2.2	360 minute 30 year Winter I+0%	99.400	98.505	0.540	0.000	0.32
S4.002	S2.1	360 minute 30 year Winter I+0%	99.290	98.504	0.569	0.000	0.07
S1.007	S2.0	60 minute 30 year Summer I+0%	98.600	97.763	0.123	0.000	1.75
S1.008	S1	480 minute 30 year Winter I+0%	97.650	96.826	0.376	0.000	0.27

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

PN	US/MH Name	Overflow (l/s)	Maximum Vol (m³)	Half Drain Pipe		Status
				Time (mins)	Flow (l/s)	
S1.000	S9.0		0.239		2.6	SURCHARGED
S1.001	S8.0		0.746		3.5	SURCHARGED
S1.002	S7.0		16.234	56	10.7	SURCHARGED
S1.003	S6.0		0.161		13.9	OK
S2.000	SDummy		0.000		0.0	OK
S2.001	S5.2		18.457		0.7	SURCHARGED
S2.002	S5.1		0.028		0.7	OK
S1.004	S5.0		0.387		29.9	OK
S3.000	S4.2		1.655	28	2.7	OK
S3.001	S4.1		1.634	24	11.1	OK
S1.005	S4.0		0.766	10	65.7	OK
S1.006	S3.0		0.243		74.9	OK
S4.000	S2.3		0.624		2.0	SURCHARGED
S4.001	S2.2		1.105		3.5	SURCHARGED
S4.002	S2.1		36.715		1.0	SURCHARGED
S1.007	S2.0		1.243		101.8	SURCHARGED
S1.008	S1		226.766	744	4.3	SURCHARGED

Glanville Consultants		Page 18
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 3 - WATERCOURSE STRAT.	
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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 Storage Structures 7
Number of Online Controls 4 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0


Synthetic Rainfall Details

Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 430500 218950 SP 30500 18950
Data Type Catchment
Cv (Summer) 0.750
Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 60, 120, 240, 360, 480, 960, 1440, 2160,
2880, 4320, 5760
Return Period(s) (years) 2, 10, 30, 100
Climate Change (%) 0, 0, 0, 40

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap.
S1.000	S9.0	60 minute 100 year Winter I+40%	102.200	101.326	0.376	0.000	0.38
S1.001	S8.0	60 minute 100 year Winter I+40%	102.550	101.300	0.500	0.000	0.52
S1.002	S7.0	60 minute 100 year Winter I+40%	101.550	101.209	0.769	0.000	0.97
S1.003	S6.0	60 minute 100 year Winter I+40%	101.200	100.425	0.120	0.000	0.53
S2.000	SDummy	60 minute 100 year Summer I+40%	103.000	102.000	-0.150	0.000	0.00
S2.001	S5.2	360 minute 100 year Winter I+40%	101.600	100.627	0.477	0.000	0.07
S2.002	S5.1	60 minute 100 year Summer I+40%	101.600	100.304	0.224	0.000	0.16
S1.004	S5.0	60 minute 100 year Summer I+40%	100.700	100.309	0.549	0.000	1.58
S3.000	S4.2	60 minute 100 year Summer I+40%	101.350	100.216	-0.084	0.000	0.39
S3.001	S4.1	60 minute 100 year Summer I+40%	101.300	100.189	0.079	0.000	0.82
S1.005	S4.0	60 minute 100 year Summer I+40%	100.600	100.088	0.413	0.000	0.93
S1.006	S3.0	60 minute 100 year Summer I+40%	99.900	99.272	0.612	0.000	1.16
S4.000	S2.3	60 minute 100 year Winter I+40%	99.000	98.804	0.704	0.000	0.83
S4.001	S2.2	60 minute 100 year Winter I+40%	99.400	98.739	0.774	0.000	1.78
S4.002	S2.1	60 minute 100 year Winter I+40%	99.290	98.693	0.758	0.000	1.31
S1.007	S2.0	60 minute 100 year Summer I+40%	98.600	97.929	0.289	0.000	2.47
S1.008	S1	480 minute 100 year Winter I+40%	97.650	97.268	0.818	0.000	0.36

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 3 - WATERCOURSE STRAT.	
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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

PN	US/MH Name	Overflow (l/s)	Maximum Vol (m³)	Half Drain Pipe		Status
				Time (mins)	Flow (l/s)	
S1.000	S9.0		0.589		5.3	SURCHARGED
S1.001	S8.0		1.081		7.3	SURCHARGED
S1.002	S7.0		21.621	50	31.7	SURCHARGED
S1.003	S6.0		1.498		39.4	SURCHARGED
S2.000	SDummy		0.000		0.0	OK
S2.001	S5.2		36.468		0.9	SURCHARGED
S2.002	S5.1		0.568		2.2	SURCHARGED
S1.004	S5.0		2.521		50.9	SURCHARGED
S3.000	S4.2		2.478	24	5.6	OK
S3.001	S4.1		5.240	10	18.8	SURCHARGED
S1.005	S4.0		8.389	10	91.6	SURCHARGED
S1.006	S3.0		1.594		100.2	SURCHARGED
S4.000	S2.3		0.961		11.3	FLOOD RISK
S4.001	S2.2		1.370		19.3	SURCHARGED
S4.002	S2.1		42.633		18.6	SURCHARGED
S1.007	S2.0		1.887		143.7	SURCHARGED
S1.008	S1		467.652	1032	5.8	SURCHARGED

Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 3 - WATERCOURSE STRAT.
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Micro Drainage	Network 2020.1.3
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Summary of Results for 480 minute 100 year Winter (Storm)

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

PN	US/MH Name	US/CL (m)	Water Surcharged Flooded			Flow / Overflow Cap. (l/s)	Maximum Vol (m³)	Half Drain Pipe	
			Level (m)	Depth (m)	Volume (m³)			Time (mins)	Pipe Flow (l/s)
S1.008	S1	97.650	97.267	0.817	0.000	0.36	467.072	2392	5.8

US/MH		
PN	Name	Status
S1.008	S1	SURCHARGED



Rainfall Hyetograph for 480 minute 100 year Winter (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
8	0.654	104	4.568	200	17.636	296	16.006	392	4.297
16	1.880	112	4.937	208	19.024	304	14.544	400	4.163
24	2.781	120	5.427	216	20.319	312	13.103	408	4.101
32	3.446	128	6.147	224	21.589	320	11.549	416	4.091
40	3.799	136	6.940	232	22.491	328	10.257	424	4.100
48	4.000	144	7.862	240	23.141	336	9.061	432	4.089
56	4.089	152	9.061	248	23.141	344	7.862	440	4.000
64	4.100	160	10.257	256	22.491	352	6.940	448	3.799
72	4.091	168	11.549	264	21.589	360	6.147	456	3.446
80	4.101	176	13.103	272	20.319	368	5.427	464	2.781
88	4.163	184	14.544	280	19.024	376	4.937	472	1.880
96	4.297	192	16.006	288	17.636	384	4.568	480	0.654

Input Hydrograph Manhole S1, DS/PN S1.008 (Storm)

480 minute 100 year Winter

Input Hydrograph Type: User Defined

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
8	0.0	240	0.0	472	0.0	704	0.0	936	0.0	1168	0.0
16	0.0	248	0.0	480	0.0	712	0.0	944	0.0	1176	0.0
24	0.0	256	0.0	488	0.0	720	0.0	952	0.0	1184	0.0
32	0.0	264	0.0	496	0.0	728	0.0	960	0.0	1192	0.0
40	0.0	272	0.0	504	0.0	736	0.0	968	0.0	1200	0.0
48	0.0	280	0.0	512	0.0	744	0.0	976	0.0	1208	0.0
56	0.0	288	0.0	520	0.0	752	0.0	984	0.0	1216	0.0
64	0.0	296	0.0	528	0.0	760	0.0	992	0.0	1224	0.0
72	0.0	304	0.0	536	0.0	768	0.0	1000	0.0	1232	0.0
80	0.0	312	0.0	544	0.0	776	0.0	1008	0.0	1240	0.0
88	0.0	320	0.0	552	0.0	784	0.0	1016	0.0	1248	0.0
96	0.0	328	0.0	560	0.0	792	0.0	1024	0.0	1256	0.0
104	0.0	336	0.0	568	0.0	800	0.0	1032	0.0	1264	0.0
112	0.0	344	0.0	576	0.0	808	0.0	1040	0.0	1272	0.0
120	0.0	352	0.0	584	0.0	816	0.0	1048	0.0	1280	0.0
128	0.0	360	0.0	592	0.0	824	0.0	1056	0.0	1288	0.0
136	0.0	368	0.0	600	0.0	832	0.0	1064	0.0	1296	0.0
144	0.0	376	0.0	608	0.0	840	0.0	1072	0.0	1304	0.0
152	0.0	384	0.0	616	0.0	848	0.0	1080	0.0	1312	0.0
160	0.0	392	0.0	624	0.0	856	0.0	1088	0.0	1320	0.0
168	0.0	400	0.0	632	0.0	864	0.0	1096	0.0	1328	0.0
176	0.0	408	0.0	640	0.0	872	0.0	1104	0.0	1336	0.0
184	0.0	416	0.0	648	0.0	880	0.0	1112	0.0	1344	0.0
192	0.0	424	0.0	656	0.0	888	0.0	1120	0.0	1352	0.0
200	0.0	432	0.0	664	0.0	896	0.0	1128	0.0	1360	0.0
208	0.0	440	0.0	672	0.0	904	0.0	1136	0.0	1368	0.0
216	0.0	448	0.0	680	0.0	912	0.0	1144	0.0	1376	0.0
224	0.0	456	0.0	688	0.0	920	0.0	1152	0.0	1384	0.0
232	0.0	464	0.0	696	0.0	928	0.0	1160	0.0	1392	0.0

Input Hydrograph Manhole S1, DS/PN S1.008 (Storm)
480 minute 100 year Winter
Input Hydrograph Type: User Defined

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
1400	0.0	1728	0.0	2056	4.2	2384	3.7	2712	1.1	3040	0.1
1408	0.0	1736	0.0	2064	4.5	2392	3.6	2720	1.1	3048	0.1
1416	0.0	1744	0.0	2072	4.9	2400	3.6	2728	1.1	3056	0.1
1424	0.0	1752	0.0	2080	5.4	2408	3.2	2736	1.1	3064	0.1
1432	0.0	1760	0.0	2088	6.0	2416	2.2	2744	1.1	3072	0.1
1440	0.0	1768	0.0	2096	6.9	2424	1.5	2752	1.1	3080	0.1
1448	0.0	1776	0.0	2104	8.0	2432	1.4	2760	1.1	3088	0.0
1456	0.0	1784	0.0	2112	9.8	2440	1.4	2768	1.0	3096	0.0
1464	0.0	1792	0.0	2120	11.6	2448	1.4	2776	1.0	3104	0.0
1472	0.0	1800	0.0	2128	13.7	2456	1.4	2784	1.0	3112	0.0
1480	0.0	1808	0.0	2136	15.9	2464	1.4	2792	0.9	3120	0.0
1488	0.0	1816	0.0	2144	18.5	2472	1.4	2800	0.9	3128	0.0
1496	0.0	1824	0.0	2152	21.3	2480	1.4	2808	0.8	3136	0.0
1504	0.0	1832	0.0	2160	24.3	2488	1.4	2816	0.7	3144	0.0
1512	0.0	1840	0.0	2168	25.3	2496	1.4	2824	0.7	3152	0.0
1520	0.0	1848	0.0	2176	23.7	2504	1.3	2832	0.6	3160	0.0
1528	0.0	1856	0.0	2184	21.6	2512	1.3	2840	0.6	3168	0.0
1536	0.0	1864	0.0	2192	19.4	2520	1.3	2848	0.5	3176	0.0
1544	0.0	1872	0.0	2200	17.3	2528	1.3	2856	0.4	3184	0.0
1552	0.0	1880	0.0	2208	14.8	2536	1.3	2864	0.4	3192	0.0
1560	0.0	1888	0.0	2216	12.2	2544	1.3	2872	0.3	3200	0.0
1568	0.0	1896	0.0	2224	10.4	2552	1.3	2880	0.3	3208	0.0
1576	0.0	1904	0.0	2232	8.9	2560	1.3	2888	0.3	3216	0.0
1584	0.0	1912	0.0	2240	7.8	2568	1.3	2896	0.3	3224	0.0
1592	0.0	1920	0.0	2248	7.0	2576	1.2	2904	0.2	3232	0.0
1600	0.0	1928	0.6	2256	6.5	2584	1.2	2912	0.2	3240	0.0
1608	0.0	1936	1.0	2264	6.0	2592	1.2	2920	0.2	3248	0.0
1616	0.0	1944	1.2	2272	5.6	2600	1.2	2928	0.2	3256	0.0
1624	0.0	1952	1.6	2280	5.3	2608	1.2	2936	0.2	3264	0.0
1632	0.0	1960	1.8	2288	5.1	2616	1.2	2944	0.2	3272	0.0
1640	0.0	1968	2.4	2296	4.9	2624	1.2	2952	0.1	3280	0.0
1648	0.0	1976	2.5	2304	4.7	2632	1.2	2960	0.1	3288	0.0
1656	0.0	1984	2.6	2312	4.6	2640	1.2	2968	0.1	3296	0.0
1664	0.0	1992	2.7	2320	4.4	2648	1.1	2976	0.1	3304	0.0
1672	0.0	2000	2.9	2328	4.3	2656	1.1	2984	0.1	3312	0.0
1680	0.0	2008	3.1	2336	4.2	2664	1.1	2992	0.1	3320	0.0
1688	0.0	2016	3.2	2344	4.1	2672	1.1	3000	0.1	3328	0.0
1696	0.0	2024	3.4	2352	4.0	2680	1.1	3008	0.1	3336	0.0
1704	0.0	2032	3.6	2360	3.9	2688	1.1	3016	0.1	3344	0.0
1712	0.0	2040	3.8	2368	3.8	2696	1.1	3024	0.1	3352	0.0
1720	0.0	2048	4.0	2376	3.7	2704	1.1	3032	0.1	3360	0.0

Cornerstone Court
62 Foxhall Road
Didcot OX11 7AD

Land West of London Lane
Ascott-under-Wychwood
OPTION 3 - WATERCOURSE STRAT.



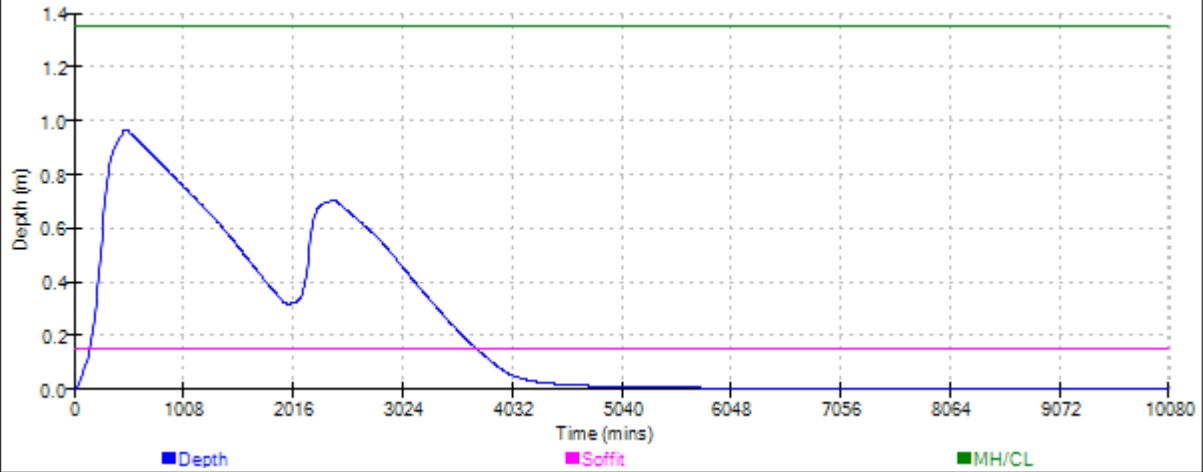
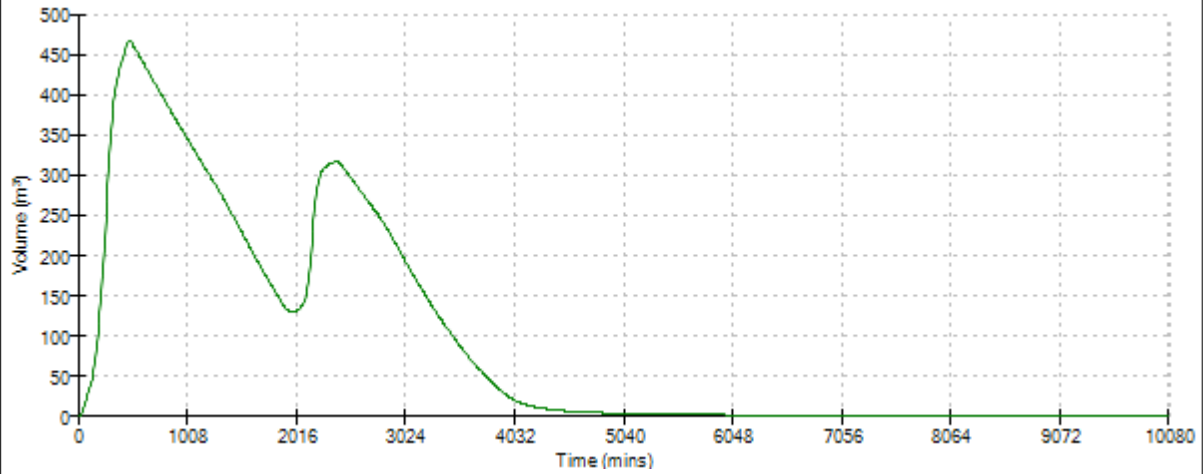
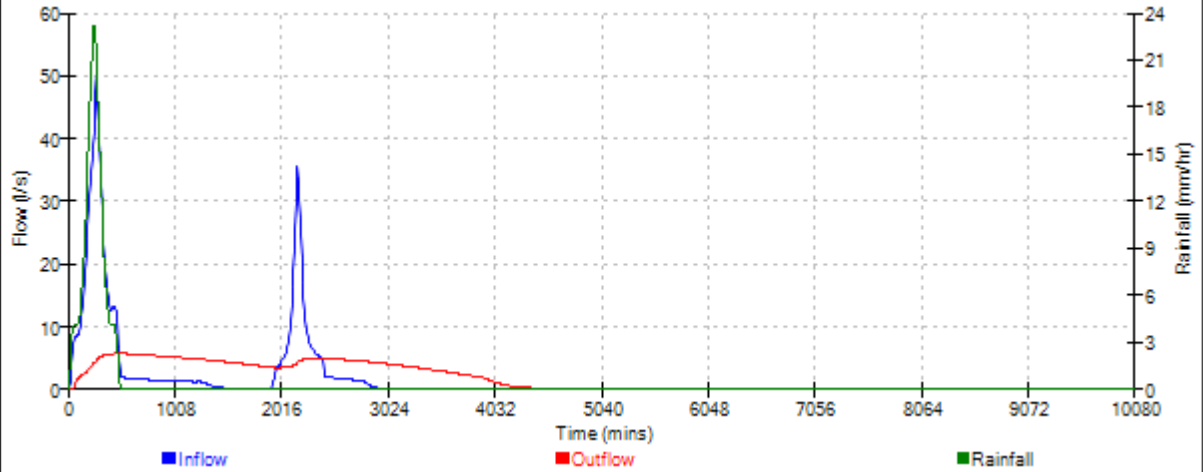
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Checked by C Salt

Micro Drainage

Network 2020.1.3

Graphs for Pipe S1.008 US/MH S1 (Storm)
480 minute 100 year Winter
Status: SURCHARGED



Glanville Consultants		Page 1
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood Option 3 - CRATES 1:100	
Date 18/01/2024 14:22 File 8211067 - OPTION 3 - OU...	Designed by S McNair Checked by C Salt	
Micro Drainage	Source Control 2020.1.3	

Summary of Results for Input Hydrograph

Half Drain Time : 1536 minutes.


Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m ³)	Status
Input Hydrograph	101.708	0.808	0.0	2.0	2.0	359.1	O K

Storm Event	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
Input Hydrograph	0.0	459.0	2544




Input Hydrograph

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
8	0.0	408	5.7	808	5.4	1208	4.9	1608	4.2	2008	3.3
16	0.0	416	5.7	816	5.4	1216	4.9	1616	4.2	2016	3.3
24	0.0	424	5.7	824	5.4	1224	4.9	1624	4.1	2024	3.3
32	0.0	432	5.7	832	5.4	1232	4.8	1632	4.1	2032	3.2
40	0.1	440	5.7	840	5.4	1240	4.8	1640	4.1	2040	3.2
48	0.3	448	5.7	848	5.4	1248	4.8	1648	4.1	2048	3.2
56	0.5	456	5.8	856	5.3	1256	4.8	1656	4.1	2056	3.2
64	0.8	464	5.8	864	5.3	1264	4.8	1664	4.1	2064	3.2
72	1.1	472	5.8	872	5.3	1272	4.8	1672	4.0	2072	3.1
80	1.4	480	5.8	880	5.3	1280	4.8	1680	4.0	2080	3.1
88	1.6	488	5.8	888	5.3	1288	4.8	1688	4.0	2088	3.1
96	1.8	496	5.8	896	5.3	1296	4.8	1696	4.0	2096	3.1
104	2.0	504	5.8	904	5.3	1304	4.7	1704	4.0	2104	3.1
112	2.2	512	5.7	912	5.3	1312	4.7	1712	4.0	2112	3.0
120	2.2	520	5.7	920	5.3	1320	4.7	1720	3.9	2120	3.0
128	2.2	528	5.7	928	5.2	1328	4.7	1728	3.9	2128	3.0
136	2.3	536	5.7	936	5.2	1336	4.7	1736	3.9	2136	3.0
144	2.4	544	5.7	944	5.2	1344	4.7	1744	3.9	2144	3.0
152	2.5	552	5.7	952	5.2	1352	4.7	1752	3.9	2152	3.0
160	2.6	560	5.7	960	5.2	1360	4.7	1760	3.9	2160	2.9
168	2.8	568	5.7	968	5.2	1368	4.6	1768	3.8	2168	2.9
176	2.9	576	5.7	976	5.2	1376	4.6	1776	3.8	2176	2.9
184	3.1	584	5.7	984	5.2	1384	4.6	1784	3.8	2184	2.9
192	3.2	592	5.7	992	5.2	1392	4.6	1792	3.8	2192	2.9
200	3.4	600	5.6	1000	5.2	1400	4.6	1800	3.8	2200	2.8
208	3.5	608	5.6	1008	5.1	1408	4.6	1808	3.8	2208	2.8
216	3.7	616	5.6	1016	5.1	1416	4.6	1816	3.7	2216	2.8
224	3.8	624	5.6	1024	5.1	1424	4.5	1824	3.7	2224	2.8
232	4.0	632	5.6	1032	5.1	1432	4.5	1832	3.7	2232	2.7
240	4.1	640	5.6	1040	5.1	1440	4.5	1840	3.7	2240	2.7
248	4.3	648	5.6	1048	5.1	1448	4.5	1848	3.7	2248	2.7
256	4.4	656	5.6	1056	5.1	1456	4.5	1856	3.6	2256	2.7
264	4.6	664	5.6	1064	5.1	1464	4.5	1864	3.6	2264	2.7
272	4.7	672	5.6	1072	5.1	1472	4.4	1872	3.6	2272	2.6
280	4.9	680	5.6	1080	5.1	1480	4.4	1880	3.6	2280	2.6
288	5.0	688	5.5	1088	5.0	1488	4.4	1888	3.6	2288	2.6
296	5.1	696	5.5	1096	5.0	1496	4.4	1896	3.6	2296	2.6
304	5.2	704	5.5	1104	5.0	1504	4.4	1904	3.5	2304	2.6
312	5.2	712	5.5	1112	5.0	1512	4.4	1912	3.5	2312	2.5
320	5.3	720	5.5	1120	5.0	1520	4.4	1920	3.5	2320	2.5
328	5.4	728	5.5	1128	5.0	1528	4.3	1928	3.5	2328	2.5
336	5.4	736	5.5	1136	5.0	1536	4.3	1936	3.5	2336	2.5
344	5.5	744	5.5	1144	5.0	1544	4.3	1944	3.4	2344	2.5
352	5.5	752	5.5	1152	5.0	1552	4.3	1952	3.4	2352	2.4
360	5.5	760	5.5	1160	4.9	1560	4.3	1960	3.4	2360	2.4
368	5.6	768	5.5	1168	4.9	1568	4.3	1968	3.4	2368	2.4
376	5.6	776	5.4	1176	4.9	1576	4.2	1976	3.4	2376	2.4
384	5.6	784	5.4	1184	4.9	1584	4.2	1984	3.4	2384	2.4
392	5.6	792	5.4	1192	4.9	1592	4.2	1992	3.3	2392	2.3
400	5.6	800	5.4	1200	4.9	1600	4.2	2000	3.3	2400	2.3

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Micro Drainage		Source Control 2020.1.3

Input Hydrograph

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
2408	2.3	2488	2.2	2568	1.8	2648	1.3	2728	0.9	2808	0.6
2416	2.3	2496	2.2	2576	1.8	2656	1.3	2736	0.8	2816	0.6
2424	2.2	2504	2.2	2584	1.7	2664	1.2	2744	0.8	2824	0.6
2432	2.2	2512	2.2	2592	1.7	2672	1.2	2752	0.8	2832	0.5
2440	2.2	2520	2.1	2600	1.6	2680	1.1	2760	0.7	2840	0.5
2448	2.2	2528	2.1	2608	1.6	2688	1.1	2768	0.7	2848	0.5
2456	2.2	2536	2.0	2616	1.5	2696	1.0	2776	0.7	2856	0.5
2464	2.2	2544	2.0	2624	1.5	2704	1.0	2784	0.7	2864	0.5
2472	2.2	2552	1.9	2632	1.4	2712	0.9	2792	0.6	2872	0.4
2480	2.2	2560	1.9	2640	1.4	2720	0.9	2800	0.6	2880	0.4

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Model Details

Storage is Online Cover Level (m) 102.100

Cellular Storage Structure

Invert Level (m) 100.900 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	468.0	468.0	0.900	0.0	537.6
0.800	468.0	537.6			


Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0070-2000-0805-2000
 Design Head (m) 0.805
 Design Flow (l/s) 2.0
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available Yes
 Diameter (mm) 70
 Invert Level (m) 100.895
 Minimum Outlet Pipe Diameter (mm) 100
 Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.805	2.0
Flush-Flo™	0.242	2.0
Kick-Flo®	0.510	1.6
Mean Flow over Head Range	-	1.7

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.8	1.200	2.4	3.000	3.7	7.000	5.4
0.200	2.0	1.400	2.6	3.500	3.9	7.500	5.6
0.300	2.0	1.600	2.7	4.000	4.2	8.000	5.8
0.400	1.9	1.800	2.9	4.500	4.4	8.500	6.0
0.500	1.7	2.000	3.0	5.000	4.6	9.000	6.1
0.600	1.8	2.200	3.2	5.500	4.9	9.500	6.3
0.800	2.0	2.400	3.3	6.000	5.1		
1.000	2.2	2.600	3.4	6.500	5.3		

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Summary of Results for Input Hydrograph

Half Drain Time : 2389 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m ³)	Status
Input Hydrograph	101.741	0.841	0.0	2.0	2.0	561.8	O K

Storm Event	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
Input Hydrograph	0.0	1003.7	3896

Cornerstone Court
62 Foxhall Road
Didcot OX11 7AD

Land West of London Lane
Ascott-under-Wychwood
OPTION 3 - CRATES CONS STORMS



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Designed by S McNair
Checked by C Salt

Micro Drainage Source Control 2020.1.3

Input Hydrograph

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
8	0.0	408	5.7	808	5.4	1208	4.9	1608	4.2	2008	3.5
16	0.0	416	5.7	816	5.4	1216	4.9	1616	4.2	2016	3.5
24	0.0	424	5.7	824	5.4	1224	4.9	1624	4.1	2024	3.5
32	0.0	432	5.7	832	5.4	1232	4.8	1632	4.1	2032	3.5
40	0.1	440	5.7	840	5.4	1240	4.8	1640	4.1	2040	3.5
48	0.3	448	5.7	848	5.3	1248	4.8	1648	4.1	2048	3.5
56	0.5	456	5.8	856	5.3	1256	4.8	1656	4.1	2056	3.5
64	0.8	464	5.8	864	5.3	1264	4.8	1664	4.1	2064	3.5
72	1.1	472	5.8	872	5.3	1272	4.8	1672	4.0	2072	3.5
80	1.3	480	5.8	880	5.3	1280	4.8	1680	4.0	2080	3.6
88	1.6	488	5.8	888	5.3	1288	4.8	1688	4.0	2088	3.6
96	1.8	496	5.8	896	5.3	1296	4.7	1696	4.0	2096	3.6
104	2.0	504	5.8	904	5.3	1304	4.7	1704	4.0	2104	3.6
112	2.2	512	5.7	912	5.3	1312	4.7	1712	4.0	2112	3.7
120	2.2	520	5.7	920	5.3	1320	4.7	1720	3.9	2120	3.7
128	2.2	528	5.7	928	5.2	1328	4.7	1728	3.9	2128	3.8
136	2.3	536	5.7	936	5.2	1336	4.7	1736	3.9	2136	3.9
144	2.4	544	5.7	944	5.2	1344	4.7	1744	3.9	2144	4.0
152	2.5	552	5.7	952	5.2	1352	4.7	1752	3.9	2152	4.1
160	2.6	560	5.7	960	5.2	1360	4.6	1760	3.9	2160	4.2
168	2.8	568	5.7	968	5.2	1368	4.6	1768	3.8	2168	4.3
176	2.9	576	5.7	976	5.2	1376	4.6	1776	3.8	2176	4.4
184	3.1	584	5.7	984	5.2	1384	4.6	1784	3.8	2184	4.5
192	3.2	592	5.7	992	5.2	1392	4.6	1792	3.8	2192	4.6
200	3.4	600	5.6	1000	5.2	1400	4.6	1800	3.8	2200	4.7
208	3.5	608	5.6	1008	5.1	1408	4.6	1808	3.8	2208	4.7
216	3.7	616	5.6	1016	5.1	1416	4.5	1816	3.7	2216	4.8
224	3.8	624	5.6	1024	5.1	1424	4.5	1824	3.7	2224	4.8
232	4.0	632	5.6	1032	5.1	1432	4.5	1832	3.7	2232	4.8
240	4.1	640	5.6	1040	5.1	1440	4.5	1840	3.7	2240	4.9
248	4.3	648	5.6	1048	5.1	1448	4.5	1848	3.7	2248	4.9
256	4.4	656	5.6	1056	5.1	1456	4.5	1856	3.6	2256	4.9
264	4.6	664	5.6	1064	5.1	1464	4.5	1864	3.6	2264	4.9
272	4.7	672	5.6	1072	5.1	1472	4.4	1872	3.6	2272	4.9
280	4.9	680	5.6	1080	5.1	1480	4.4	1880	3.6	2280	4.9
288	5.0	688	5.5	1088	5.0	1488	4.4	1888	3.6	2288	4.9
296	5.1	696	5.5	1096	5.0	1496	4.4	1896	3.6	2296	4.9
304	5.2	704	5.5	1104	5.0	1504	4.4	1904	3.5	2304	4.9
312	5.2	712	5.5	1112	5.0	1512	4.4	1912	3.5	2312	4.9
320	5.3	720	5.5	1120	5.0	1520	4.4	1920	3.5	2320	4.9
328	5.4	728	5.5	1128	5.0	1528	4.3	1928	3.5	2328	5.0
336	5.4	736	5.5	1136	5.0	1536	4.3	1936	3.5	2336	5.0
344	5.5	744	5.5	1144	5.0	1544	4.3	1944	3.5	2344	5.0
352	5.5	752	5.5	1152	5.0	1552	4.3	1952	3.5	2352	5.0
360	5.5	760	5.5	1160	4.9	1560	4.3	1960	3.5	2360	5.0
368	5.6	768	5.4	1168	4.9	1568	4.3	1968	3.4	2368	5.0
376	5.6	776	5.4	1176	4.9	1576	4.2	1976	3.4	2376	5.0
384	5.6	784	5.4	1184	4.9	1584	4.2	1984	3.4	2384	5.0
392	5.6	792	5.4	1192	4.9	1592	4.2	1992	3.5	2392	5.0
400	5.6	800	5.4	1200	4.9	1600	4.2	2000	3.5	2400	5.0

Cornerstone Court
62 Foxhall Road
Didcot OX11 7AD

Land West of London Lane
Ascott-under-Wychwood
OPTION 3 - CRATES CONS STORMS



Date 18/01/2024 15:25
File 8211067 - OPTION 3 - OU...

Designed by S McNair
Checked by C Salt

Micro Drainage Source Control 2020.1.3

Input Hydrograph

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
2408	5.0	2808	4.5	3208	3.7	3608	2.7	4008	1.3	4408	0.2
2416	5.0	2816	4.5	3216	3.7	3616	2.7	4016	1.3	4416	0.2
2424	5.0	2824	4.5	3224	3.6	3624	2.7	4024	1.2	4424	0.2
2432	4.9	2832	4.4	3232	3.6	3632	2.7	4032	1.2	4432	0.2
2440	4.9	2840	4.4	3240	3.6	3640	2.6	4040	1.1	4440	0.2
2448	4.9	2848	4.4	3248	3.6	3648	2.6	4048	1.1	4448	0.2
2456	4.9	2856	4.4	3256	3.6	3656	2.6	4056	1.0	4456	0.2
2464	4.9	2864	4.4	3264	3.6	3664	2.6	4064	1.0	4464	0.2
2472	4.9	2872	4.4	3272	3.5	3672	2.6	4072	1.0	4472	0.2
2480	4.9	2880	4.4	3280	3.5	3680	2.5	4080	0.9	4480	0.2
2488	4.9	2888	4.3	3288	3.5	3688	2.5	4088	0.9	4488	0.2
2496	4.9	2896	4.3	3296	3.5	3696	2.5	4096	0.8	4496	0.2
2504	4.9	2904	4.3	3304	3.5	3704	2.5	4104	0.8	4504	0.2
2512	4.9	2912	4.3	3312	3.4	3712	2.4	4112	0.8	4512	0.2
2520	4.8	2920	4.3	3320	3.4	3720	2.4	4120	0.8	4520	0.2
2528	4.8	2928	4.3	3328	3.4	3728	2.4	4128	0.7	4528	0.2
2536	4.8	2936	4.3	3336	3.4	3736	2.4	4136	0.7	4536	0.2
2544	4.8	2944	4.2	3344	3.4	3744	2.4	4144	0.7	4544	0.2
2552	4.8	2952	4.2	3352	3.3	3752	2.3	4152	0.6	4552	0.2
2560	4.8	2960	4.2	3360	3.3	3760	2.3	4160	0.6	4560	0.2
2568	4.8	2968	4.2	3368	3.3	3768	2.3	4168	0.6	4568	0.1
2576	4.8	2976	4.2	3376	3.3	3776	2.3	4176	0.6	4576	0.1
2584	4.8	2984	4.2	3384	3.3	3784	2.3	4184	0.6	4584	0.1
2592	4.8	2992	4.1	3392	3.3	3792	2.2	4192	0.5	4592	0.1
2600	4.8	3000	4.1	3400	3.2	3800	2.2	4200	0.5	4600	0.1
2608	4.7	3008	4.1	3408	3.2	3808	2.2	4208	0.5	4608	0.1
2616	4.7	3016	4.1	3416	3.2	3816	2.2	4216	0.5	4616	0.1
2624	4.7	3024	4.1	3424	3.2	3824	2.2	4224	0.5	4624	0.1
2632	4.7	3032	4.1	3432	3.2	3832	2.2	4232	0.5	4632	0.1
2640	4.7	3040	4.0	3440	3.1	3840	2.2	4240	0.4	4640	0.1
2648	4.7	3048	4.0	3448	3.1	3848	2.2	4248	0.4	4648	0.1
2656	4.7	3056	4.0	3456	3.1	3856	2.2	4256	0.4	4656	0.1
2664	4.7	3064	4.0	3464	3.1	3864	2.2	4264	0.4	4664	0.1
2672	4.7	3072	4.0	3472	3.1	3872	2.2	4272	0.4	4672	0.1
2680	4.6	3080	4.0	3480	3.0	3880	2.2	4280	0.4	4680	0.1
2688	4.6	3088	3.9	3488	3.0	3888	2.1	4288	0.4	4688	0.1
2696	4.6	3096	3.9	3496	3.0	3896	2.1	4296	0.4	4696	0.1
2704	4.6	3104	3.9	3504	3.0	3904	2.0	4304	0.3	4704	0.1
2712	4.6	3112	3.9	3512	3.0	3912	2.0	4312	0.3	4712	0.1
2720	4.6	3120	3.9	3520	2.9	3920	1.9	4320	0.3	4720	0.1
2728	4.6	3128	3.9	3528	2.9	3928	1.8	4328	0.3	4728	0.1
2736	4.6	3136	3.8	3536	2.9	3936	1.8	4336	0.3	4736	0.1
2744	4.6	3144	3.8	3544	2.9	3944	1.7	4344	0.3	4744	0.1
2752	4.6	3152	3.8	3552	2.9	3952	1.7	4352	0.3	4752	0.1
2760	4.5	3160	3.8	3560	2.8	3960	1.6	4360	0.3	4760	0.1
2768	4.5	3168	3.8	3568	2.8	3968	1.6	4368	0.3	4768	0.1
2776	4.5	3176	3.7	3576	2.8	3976	1.5	4376	0.3	4776	0.1
2784	4.5	3184	3.7	3584	2.8	3984	1.5	4384	0.3	4784	0.1
2792	4.5	3192	3.7	3592	2.8	3992	1.4	4392	0.2	4792	0.1
2800	4.5	3200	3.7	3600	2.7	4000	1.4	4400	0.2	4800	0.1


Input Hydrograph

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4808	0.1	5208	0.0	5608	0.0	6008	0.0	6408	0.0	6808	0.0
4816	0.1	5216	0.0	5616	0.0	6016	0.0	6416	0.0	6816	0.0
4824	0.1	5224	0.0	5624	0.0	6024	0.0	6424	0.0	6824	0.0
4832	0.1	5232	0.0	5632	0.0	6032	0.0	6432	0.0	6832	0.0
4840	0.1	5240	0.0	5640	0.0	6040	0.0	6440	0.0	6840	0.0
4848	0.1	5248	0.0	5648	0.0	6048	0.0	6448	0.0	6848	0.0
4856	0.1	5256	0.0	5656	0.0	6056	0.0	6456	0.0	6856	0.0
4864	0.1	5264	0.0	5664	0.0	6064	0.0	6464	0.0	6864	0.0
4872	0.1	5272	0.0	5672	0.0	6072	0.0	6472	0.0	6872	0.0
4880	0.1	5280	0.0	5680	0.0	6080	0.0	6480	0.0	6880	0.0
4888	0.1	5288	0.0	5688	0.0	6088	0.0	6488	0.0	6888	0.0
4896	0.1	5296	0.0	5696	0.0	6096	0.0	6496	0.0	6896	0.0
4904	0.1	5304	0.0	5704	0.0	6104	0.0	6504	0.0	6904	0.0
4912	0.1	5312	0.0	5712	0.0	6112	0.0	6512	0.0	6912	0.0
4920	0.1	5320	0.0	5720	0.0	6120	0.0	6520	0.0	6920	0.0
4928	0.1	5328	0.0	5728	0.0	6128	0.0	6528	0.0	6928	0.0
4936	0.1	5336	0.0	5736	0.0	6136	0.0	6536	0.0	6936	0.0
4944	0.1	5344	0.0	5744	0.0	6144	0.0	6544	0.0	6944	0.0
4952	0.1	5352	0.0	5752	0.0	6152	0.0	6552	0.0	6952	0.0
4960	0.1	5360	0.0	5760	0.0	6160	0.0	6560	0.0	6960	0.0
4968	0.1	5368	0.0	5768	0.0	6168	0.0	6568	0.0	6968	0.0
4976	0.1	5376	0.0	5776	0.0	6176	0.0	6576	0.0	6976	0.0
4984	0.1	5384	0.0	5784	0.0	6184	0.0	6584	0.0	6984	0.0
4992	0.1	5392	0.0	5792	0.0	6192	0.0	6592	0.0	6992	0.0
5000	0.1	5400	0.0	5800	0.0	6200	0.0	6600	0.0	7000	0.0
5008	0.1	5408	0.0	5808	0.0	6208	0.0	6608	0.0	7008	0.0
5016	0.1	5416	0.0	5816	0.0	6216	0.0	6616	0.0	7016	0.0
5024	0.1	5424	0.0	5824	0.0	6224	0.0	6624	0.0	7024	0.0
5032	0.1	5432	0.0	5832	0.0	6232	0.0	6632	0.0	7032	0.0
5040	0.1	5440	0.0	5840	0.0	6240	0.0	6640	0.0	7040	0.0
5048	0.1	5448	0.0	5848	0.0	6248	0.0	6648	0.0	7048	0.0
5056	0.1	5456	0.0	5856	0.0	6256	0.0	6656	0.0	7056	0.0
5064	0.1	5464	0.0	5864	0.0	6264	0.0	6664	0.0	7064	0.0
5072	0.1	5472	0.0	5872	0.0	6272	0.0	6672	0.0	7072	0.0
5080	0.1	5480	0.0	5880	0.0	6280	0.0	6680	0.0	7080	0.0
5088	0.1	5488	0.0	5888	0.0	6288	0.0	6688	0.0	7088	0.0
5096	0.0	5496	0.0	5896	0.0	6296	0.0	6696	0.0	7096	0.0
5104	0.0	5504	0.0	5904	0.0	6304	0.0	6704	0.0	7104	0.0
5112	0.0	5512	0.0	5912	0.0	6312	0.0	6712	0.0	7112	0.0
5120	0.0	5520	0.0	5920	0.0	6320	0.0	6720	0.0	7120	0.0
5128	0.0	5528	0.0	5928	0.0	6328	0.0	6728	0.0	7128	0.0
5136	0.0	5536	0.0	5936	0.0	6336	0.0	6736	0.0	7136	0.0
5144	0.0	5544	0.0	5944	0.0	6344	0.0	6744	0.0	7144	0.0
5152	0.0	5552	0.0	5952	0.0	6352	0.0	6752	0.0	7152	0.0
5160	0.0	5560	0.0	5960	0.0	6360	0.0	6760	0.0	7160	0.0
5168	0.0	5568	0.0	5968	0.0	6368	0.0	6768	0.0	7168	0.0
5176	0.0	5576	0.0	5976	0.0	6376	0.0	6776	0.0	7176	0.0
5184	0.0	5584	0.0	5984	0.0	6384	0.0	6784	0.0	7184	0.0
5192	0.0	5592	0.0	5992	0.0	6392	0.0	6792	0.0	7192	0.0
5200	0.0	5600	0.0	6000	0.0	6400	0.0	6800	0.0	7200	0.0



Input Hydrograph

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
7208	0.0	7608	0.0	8008	0.0	8408	0.0	8808	0.0	9208	0.0
7216	0.0	7616	0.0	8016	0.0	8416	0.0	8816	0.0	9216	0.0
7224	0.0	7624	0.0	8024	0.0	8424	0.0	8824	0.0	9224	0.0
7232	0.0	7632	0.0	8032	0.0	8432	0.0	8832	0.0	9232	0.0
7240	0.0	7640	0.0	8040	0.0	8440	0.0	8840	0.0	9240	0.0
7248	0.0	7648	0.0	8048	0.0	8448	0.0	8848	0.0	9248	0.0
7256	0.0	7656	0.0	8056	0.0	8456	0.0	8856	0.0	9256	0.0
7264	0.0	7664	0.0	8064	0.0	8464	0.0	8864	0.0	9264	0.0
7272	0.0	7672	0.0	8072	0.0	8472	0.0	8872	0.0	9272	0.0
7280	0.0	7680	0.0	8080	0.0	8480	0.0	8880	0.0	9280	0.0
7288	0.0	7688	0.0	8088	0.0	8488	0.0	8888	0.0	9288	0.0
7296	0.0	7696	0.0	8096	0.0	8496	0.0	8896	0.0	9296	0.0
7304	0.0	7704	0.0	8104	0.0	8504	0.0	8904	0.0	9304	0.0
7312	0.0	7712	0.0	8112	0.0	8512	0.0	8912	0.0	9312	0.0
7320	0.0	7720	0.0	8120	0.0	8520	0.0	8920	0.0	9320	0.0
7328	0.0	7728	0.0	8128	0.0	8528	0.0	8928	0.0	9328	0.0
7336	0.0	7736	0.0	8136	0.0	8536	0.0	8936	0.0	9336	0.0
7344	0.0	7744	0.0	8144	0.0	8544	0.0	8944	0.0	9344	0.0
7352	0.0	7752	0.0	8152	0.0	8552	0.0	8952	0.0	9352	0.0
7360	0.0	7760	0.0	8160	0.0	8560	0.0	8960	0.0	9360	0.0
7368	0.0	7768	0.0	8168	0.0	8568	0.0	8968	0.0	9368	0.0
7376	0.0	7776	0.0	8176	0.0	8576	0.0	8976	0.0	9376	0.0
7384	0.0	7784	0.0	8184	0.0	8584	0.0	8984	0.0	9384	0.0
7392	0.0	7792	0.0	8192	0.0	8592	0.0	8992	0.0	9392	0.0
7400	0.0	7800	0.0	8200	0.0	8600	0.0	9000	0.0	9400	0.0
7408	0.0	7808	0.0	8208	0.0	8608	0.0	9008	0.0	9408	0.0
7416	0.0	7816	0.0	8216	0.0	8616	0.0	9016	0.0	9416	0.0
7424	0.0	7824	0.0	8224	0.0	8624	0.0	9024	0.0	9424	0.0
7432	0.0	7832	0.0	8232	0.0	8632	0.0	9032	0.0	9432	0.0
7440	0.0	7840	0.0	8240	0.0	8640	0.0	9040	0.0	9440	0.0
7448	0.0	7848	0.0	8248	0.0	8648	0.0	9048	0.0	9448	0.0
7456	0.0	7856	0.0	8256	0.0	8656	0.0	9056	0.0	9456	0.0
7464	0.0	7864	0.0	8264	0.0	8664	0.0	9064	0.0	9464	0.0
7472	0.0	7872	0.0	8272	0.0	8672	0.0	9072	0.0	9472	0.0
7480	0.0	7880	0.0	8280	0.0	8680	0.0	9080	0.0	9480	0.0
7488	0.0	7888	0.0	8288	0.0	8688	0.0	9088	0.0	9488	0.0
7496	0.0	7896	0.0	8296	0.0	8696	0.0	9096	0.0	9496	0.0
7504	0.0	7904	0.0	8304	0.0	8704	0.0	9104	0.0	9504	0.0
7512	0.0	7912	0.0	8312	0.0	8712	0.0	9112	0.0	9512	0.0
7520	0.0	7920	0.0	8320	0.0	8720	0.0	9120	0.0	9520	0.0
7528	0.0	7928	0.0	8328	0.0	8728	0.0	9128	0.0	9528	0.0
7536	0.0	7936	0.0	8336	0.0	8736	0.0	9136	0.0	9536	0.0
7544	0.0	7944	0.0	8344	0.0	8744	0.0	9144	0.0	9544	0.0
7552	0.0	7952	0.0	8352	0.0	8752	0.0	9152	0.0	9552	0.0
7560	0.0	7960	0.0	8360	0.0	8760	0.0	9160	0.0	9560	0.0
7568	0.0	7968	0.0	8368	0.0	8768	0.0	9168	0.0	9568	0.0
7576	0.0	7976	0.0	8376	0.0	8776	0.0	9176	0.0	9576	0.0
7584	0.0	7984	0.0	8384	0.0	8784	0.0	9184	0.0	9584	0.0
7592	0.0	7992	0.0	8392	0.0	8792	0.0	9192	0.0	9592	0.0
7600	0.0	8000	0.0	8400	0.0	8800	0.0	9200	0.0	9600	0.0


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Micro Drainage	Source Control 2020.1.3
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Input Hydrograph

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
9608	0.0	9688	0.0	9768	0.0	9848	0.0	9928	0.0	10008	0.0
9616	0.0	9696	0.0	9776	0.0	9856	0.0	9936	0.0	10016	0.0
9624	0.0	9704	0.0	9784	0.0	9864	0.0	9944	0.0	10024	0.0
9632	0.0	9712	0.0	9792	0.0	9872	0.0	9952	0.0	10032	0.0
9640	0.0	9720	0.0	9800	0.0	9880	0.0	9960	0.0	10040	0.0
9648	0.0	9728	0.0	9808	0.0	9888	0.0	9968	0.0	10048	0.0
9656	0.0	9736	0.0	9816	0.0	9896	0.0	9976	0.0	10056	0.0
9664	0.0	9744	0.0	9824	0.0	9904	0.0	9984	0.0	10064	0.0
9672	0.0	9752	0.0	9832	0.0	9912	0.0	9992	0.0	10072	0.0
9680	0.0	9760	0.0	9840	0.0	9920	0.0	10000	0.0	10080	0.0

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Micro Drainage	Source Control 2020.1.3	

Model Details

Storage is Online Cover Level (m) 102.100

Cellular Storage Structure

Invert Level (m) 100.900 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	715.5	715.5	0.900	0.0	801.1
0.800	715.5	801.1			


Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0070-2000-0805-2000
 Design Head (m) 0.805
 Design Flow (l/s) 2.0
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available Yes
 Diameter (mm) 70
 Invert Level (m) 100.895
 Minimum Outlet Pipe Diameter (mm) 100
 Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.805	2.0
Flush-Flo™	0.242	2.0
Kick-Flo®	0.510	1.6
Mean Flow over Head Range	-	1.7

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.8	1.200	2.4	3.000	3.7	7.000	5.4
0.200	2.0	1.400	2.6	3.500	3.9	7.500	5.6
0.300	2.0	1.600	2.7	4.000	4.2	8.000	5.8
0.400	1.9	1.800	2.9	4.500	4.4	8.500	6.0
0.500	1.7	2.000	3.0	5.000	4.6	9.000	6.1
0.600	1.8	2.200	3.2	5.500	4.9	9.500	6.3
0.800	2.0	2.400	3.3	6.000	5.1		
1.000	2.2	2.600	3.4	6.500	5.3		

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Summary of Results for Input Hydrograph

Half Drain Time : 1563 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max E Outflow (l/s)	Max Volume (m ³)	Status
Input Hydrograph	97.728	0.628	0.0	2.0	2.0	371.2	O K

Storm Event	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
Input Hydrograph	0.0	442.2	2592

Cornerstone Court
62 Foxhall Road
Didcot OX11 7AD

Land West of London Lane
Ascott-under-Wychwood
OPTION 3 - BASIN 1:100YR




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Designed by S McNair
Checked by C Salt

Micro Drainage Source Control 2020.1.3


Input Hydrograph

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
8	0.0	408	5.7	808	5.4	1208	4.9	1608	4.2	2008	3.3
16	0.0	416	5.7	816	5.4	1216	4.9	1616	4.2	2016	3.3
24	0.0	424	5.7	824	5.4	1224	4.9	1624	4.1	2024	3.3
32	0.0	432	5.7	832	5.4	1232	4.8	1632	4.1	2032	3.2
40	0.1	440	5.7	840	5.4	1240	4.8	1640	4.1	2040	3.2
48	0.3	448	5.7	848	5.4	1248	4.8	1648	4.1	2048	3.2
56	0.5	456	5.8	856	5.3	1256	4.8	1656	4.1	2056	3.2
64	0.8	464	5.8	864	5.3	1264	4.8	1664	4.1	2064	3.2
72	1.1	472	5.8	872	5.3	1272	4.8	1672	4.0	2072	3.1
80	1.4	480	5.8	880	5.3	1280	4.8	1680	4.0	2080	3.1
88	1.6	488	5.8	888	5.3	1288	4.8	1688	4.0	2088	3.1
96	1.8	496	5.8	896	5.3	1296	4.8	1696	4.0	2096	3.1
104	2.0	504	5.8	904	5.3	1304	4.7	1704	4.0	2104	3.1
112	2.2	512	5.7	912	5.3	1312	4.7	1712	4.0	2112	3.0
120	2.2	520	5.7	920	5.3	1320	4.7	1720	3.9	2120	3.0
128	2.2	528	5.7	928	5.2	1328	4.7	1728	3.9	2128	3.0
136	2.3	536	5.7	936	5.2	1336	4.7	1736	3.9	2136	3.0
144	2.4	544	5.7	944	5.2	1344	4.7	1744	3.9	2144	3.0
152	2.5	552	5.7	952	5.2	1352	4.7	1752	3.9	2152	3.0
160	2.6	560	5.7	960	5.2	1360	4.7	1760	3.9	2160	2.9
168	2.8	568	5.7	968	5.2	1368	4.6	1768	3.8	2168	2.9
176	2.9	576	5.7	976	5.2	1376	4.6	1776	3.8	2176	2.9
184	3.1	584	5.7	984	5.2	1384	4.6	1784	3.8	2184	2.9
192	3.2	592	5.7	992	5.2	1392	4.6	1792	3.8	2192	2.9
200	3.4	600	5.6	1000	5.2	1400	4.6	1800	3.8	2200	2.8
208	3.5	608	5.6	1008	5.1	1408	4.6	1808	3.8	2208	2.8
216	3.7	616	5.6	1016	5.1	1416	4.6	1816	3.7	2216	2.8
224	3.8	624	5.6	1024	5.1	1424	4.5	1824	3.7	2224	2.8
232	4.0	632	5.6	1032	5.1	1432	4.5	1832	3.7	2232	2.7
240	4.1	640	5.6	1040	5.1	1440	4.5	1840	3.7	2240	2.7
248	4.3	648	5.6	1048	5.1	1448	4.5	1848	3.7	2248	2.7
256	4.4	656	5.6	1056	5.1	1456	4.5	1856	3.6	2256	2.7
264	4.6	664	5.6	1064	5.1	1464	4.5	1864	3.6	2264	2.7
272	4.7	672	5.6	1072	5.1	1472	4.4	1872	3.6	2272	2.6
280	4.9	680	5.6	1080	5.1	1480	4.4	1880	3.6	2280	2.6
288	5.0	688	5.5	1088	5.0	1488	4.4	1888	3.6	2288	2.6
296	5.1	696	5.5	1096	5.0	1496	4.4	1896	3.6	2296	2.6
304	5.2	704	5.5	1104	5.0	1504	4.4	1904	3.5	2304	2.6
312	5.2	712	5.5	1112	5.0	1512	4.4	1912	3.5	2312	2.5
320	5.3	720	5.5	1120	5.0	1520	4.4	1920	3.5	2320	2.5
328	5.4	728	5.5	1128	5.0	1528	4.3	1928	3.5	2328	2.5
336	5.4	736	5.5	1136	5.0	1536	4.3	1936	3.5	2336	2.5
344	5.5	744	5.5	1144	5.0	1544	4.3	1944	3.4	2344	2.5
352	5.5	752	5.5	1152	5.0	1552	4.3	1952	3.4	2352	2.4
360	5.5	760	5.5	1160	4.9	1560	4.3	1960	3.4	2360	2.4
368	5.6	768	5.5	1168	4.9	1568	4.3	1968	3.4	2368	2.4
376	5.6	776	5.4	1176	4.9	1576	4.2	1976	3.4	2376	2.4
384	5.6	784	5.4	1184	4.9	1584	4.2	1984	3.4	2384	2.4
392	5.6	792	5.4	1192	4.9	1592	4.2	1992	3.3	2392	2.3
400	5.6	800	5.4	1200	4.9	1600	4.2	2000	3.3	2400	2.3

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Micro Drainage		Source Control 2020.1.3

Input Hydrograph

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
2408	2.3	2488	2.2	2568	1.8	2648	1.3	2728	0.9	2808	0.6
2416	2.3	2496	2.2	2576	1.8	2656	1.3	2736	0.8	2816	0.6
2424	2.2	2504	2.2	2584	1.7	2664	1.2	2744	0.8	2824	0.6
2432	2.2	2512	2.2	2592	1.7	2672	1.2	2752	0.8	2832	0.5
2440	2.2	2520	2.1	2600	1.6	2680	1.1	2760	0.7	2840	0.5
2448	2.2	2528	2.1	2608	1.6	2688	1.1	2768	0.7	2848	0.5
2456	2.2	2536	2.0	2616	1.5	2696	1.0	2776	0.7	2856	0.5
2464	2.2	2544	2.0	2624	1.5	2704	1.0	2784	0.7	2864	0.5
2472	2.2	2552	1.9	2632	1.4	2712	0.9	2792	0.6	2872	0.4
2480	2.2	2560	1.9	2640	1.4	2720	0.9	2800	0.6	2880	0.4

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Micro Drainage	Source Control 2020.1.3	

Model Details

Storage is Online Cover Level (m) 98.300

Infiltration Basin Structure

Invert Level (m) 97.100 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 1.00
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	512.0	0.900	751.5	1.200	841.5


Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0068-2000-0905-2000
 Design Head (m) 0.905
 Design Flow (l/s) 2.0
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available Yes
 Diameter (mm) 68
 Invert Level (m) 97.095
 Minimum Outlet Pipe Diameter (mm) 100
 Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.905	2.0
Flush-Flo™	0.276	2.0
Kick-Flo®	0.567	1.6
Mean Flow over Head Range	-	1.8

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.7	1.200	2.3	3.000	3.5	7.000	5.2
0.200	2.0	1.400	2.4	3.500	3.7	7.500	5.3
0.300	2.0	1.600	2.6	4.000	4.0	8.000	5.5
0.400	1.9	1.800	2.7	4.500	4.2	8.500	5.6
0.500	1.8	2.000	2.9	5.000	4.4	9.000	5.8
0.600	1.7	2.200	3.0	5.500	4.6	9.500	6.0
0.800	1.9	2.400	3.1	6.000	4.8		
1.000	2.1	2.600	3.2	6.500	5.0		

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Micro Drainage	Source Control 2020.1.3	

Summary of Results for Input Hydrograph

Half Drain Time : 2461 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max E Outflow (l/s)	Max Volume (m ³)	Status
Input Hydrograph	97.997	0.897	0.0	2.0	2.0	563.0	O K

Storm Event	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
Input Hydrograph	0.0	1005.1	3904



Input Hydrograph

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
8	0.0	408	5.7	808	5.4	1208	4.9	1608	4.2	2008	3.5
16	0.0	416	5.7	816	5.4	1216	4.9	1616	4.2	2016	3.5
24	0.0	424	5.7	824	5.4	1224	4.9	1624	4.1	2024	3.5
32	0.0	432	5.7	832	5.4	1232	4.8	1632	4.1	2032	3.5
40	0.1	440	5.7	840	5.4	1240	4.8	1640	4.1	2040	3.5
48	0.3	448	5.7	848	5.3	1248	4.8	1648	4.1	2048	3.5
56	0.5	456	5.8	856	5.3	1256	4.8	1656	4.1	2056	3.5
64	0.8	464	5.8	864	5.3	1264	4.8	1664	4.1	2064	3.5
72	1.1	472	5.8	872	5.3	1272	4.8	1672	4.0	2072	3.5
80	1.3	480	5.8	880	5.3	1280	4.8	1680	4.0	2080	3.6
88	1.6	488	5.8	888	5.3	1288	4.8	1688	4.0	2088	3.6
96	1.8	496	5.8	896	5.3	1296	4.7	1696	4.0	2096	3.6
104	2.0	504	5.8	904	5.3	1304	4.7	1704	4.0	2104	3.6
112	2.2	512	5.7	912	5.3	1312	4.7	1712	4.0	2112	3.7
120	2.2	520	5.7	920	5.3	1320	4.7	1720	3.9	2120	3.7
128	2.2	528	5.7	928	5.2	1328	4.7	1728	3.9	2128	3.8
136	2.3	536	5.7	936	5.2	1336	4.7	1736	3.9	2136	3.9
144	2.4	544	5.7	944	5.2	1344	4.7	1744	3.9	2144	4.0
152	2.5	552	5.7	952	5.2	1352	4.7	1752	3.9	2152	4.1
160	2.6	560	5.7	960	5.2	1360	4.6	1760	3.9	2160	4.2
168	2.8	568	5.7	968	5.2	1368	4.6	1768	3.8	2168	4.3
176	2.9	576	5.7	976	5.2	1376	4.6	1776	3.8	2176	4.4
184	3.1	584	5.7	984	5.2	1384	4.6	1784	3.8	2184	4.5
192	3.2	592	5.7	992	5.2	1392	4.6	1792	3.8	2192	4.6
200	3.4	600	5.6	1000	5.2	1400	4.6	1800	3.8	2200	4.7
208	3.5	608	5.6	1008	5.1	1408	4.6	1808	3.8	2208	4.7
216	3.7	616	5.6	1016	5.1	1416	4.5	1816	3.7	2216	4.8
224	3.8	624	5.6	1024	5.1	1424	4.5	1824	3.7	2224	4.8
232	4.0	632	5.6	1032	5.1	1432	4.5	1832	3.7	2232	4.8
240	4.1	640	5.6	1040	5.1	1440	4.5	1840	3.7	2240	4.9
248	4.3	648	5.6	1048	5.1	1448	4.5	1848	3.7	2248	4.9
256	4.4	656	5.6	1056	5.1	1456	4.5	1856	3.6	2256	4.9
264	4.6	664	5.6	1064	5.1	1464	4.5	1864	3.6	2264	4.9
272	4.7	672	5.6	1072	5.1	1472	4.4	1872	3.6	2272	4.9
280	4.9	680	5.6	1080	5.1	1480	4.4	1880	3.6	2280	4.9
288	5.0	688	5.5	1088	5.0	1488	4.4	1888	3.6	2288	4.9
296	5.1	696	5.5	1096	5.0	1496	4.4	1896	3.6	2296	4.9
304	5.2	704	5.5	1104	5.0	1504	4.4	1904	3.5	2304	4.9
312	5.2	712	5.5	1112	5.0	1512	4.4	1912	3.5	2312	4.9
320	5.3	720	5.5	1120	5.0	1520	4.4	1920	3.5	2320	4.9
328	5.4	728	5.5	1128	5.0	1528	4.3	1928	3.5	2328	5.0
336	5.4	736	5.5	1136	5.0	1536	4.3	1936	3.5	2336	5.0
344	5.5	744	5.5	1144	5.0	1544	4.3	1944	3.5	2344	5.0
352	5.5	752	5.5	1152	5.0	1552	4.3	1952	3.5	2352	5.0
360	5.5	760	5.5	1160	4.9	1560	4.3	1960	3.5	2360	5.0
368	5.6	768	5.4	1168	4.9	1568	4.3	1968	3.4	2368	5.0
376	5.6	776	5.4	1176	4.9	1576	4.2	1976	3.4	2376	5.0
384	5.6	784	5.4	1184	4.9	1584	4.2	1984	3.4	2384	5.0
392	5.6	792	5.4	1192	4.9	1592	4.2	1992	3.5	2392	5.0
400	5.6	800	5.4	1200	4.9	1600	4.2	2000	3.5	2400	5.0

Cornerstone Court
62 Foxhall Road
Didcot OX11 7AD

Land West of London Lane
Ascott-under-Wychwood
OPTIONS 3 - BASIN CONS STORMS




Date 18/01/2024 14:28
File 8211067 - OPTION 3 - OU...

Designed by S McNair
Checked by C Salt

Micro Drainage Source Control 2020.1.3


Input Hydrograph

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
2408	5.0	2808	4.5	3208	3.7	3608	2.7	4008	1.3	4408	0.2
2416	5.0	2816	4.5	3216	3.7	3616	2.7	4016	1.3	4416	0.2
2424	5.0	2824	4.5	3224	3.6	3624	2.7	4024	1.2	4424	0.2
2432	4.9	2832	4.4	3232	3.6	3632	2.7	4032	1.2	4432	0.2
2440	4.9	2840	4.4	3240	3.6	3640	2.6	4040	1.1	4440	0.2
2448	4.9	2848	4.4	3248	3.6	3648	2.6	4048	1.1	4448	0.2
2456	4.9	2856	4.4	3256	3.6	3656	2.6	4056	1.0	4456	0.2
2464	4.9	2864	4.4	3264	3.6	3664	2.6	4064	1.0	4464	0.2
2472	4.9	2872	4.4	3272	3.5	3672	2.6	4072	1.0	4472	0.2
2480	4.9	2880	4.4	3280	3.5	3680	2.5	4080	0.9	4480	0.2
2488	4.9	2888	4.3	3288	3.5	3688	2.5	4088	0.9	4488	0.2
2496	4.9	2896	4.3	3296	3.5	3696	2.5	4096	0.8	4496	0.2
2504	4.9	2904	4.3	3304	3.5	3704	2.5	4104	0.8	4504	0.2
2512	4.9	2912	4.3	3312	3.4	3712	2.4	4112	0.8	4512	0.2
2520	4.8	2920	4.3	3320	3.4	3720	2.4	4120	0.8	4520	0.2
2528	4.8	2928	4.3	3328	3.4	3728	2.4	4128	0.7	4528	0.2
2536	4.8	2936	4.3	3336	3.4	3736	2.4	4136	0.7	4536	0.2
2544	4.8	2944	4.2	3344	3.4	3744	2.4	4144	0.7	4544	0.2
2552	4.8	2952	4.2	3352	3.3	3752	2.3	4152	0.6	4552	0.2
2560	4.8	2960	4.2	3360	3.3	3760	2.3	4160	0.6	4560	0.2
2568	4.8	2968	4.2	3368	3.3	3768	2.3	4168	0.6	4568	0.1
2576	4.8	2976	4.2	3376	3.3	3776	2.3	4176	0.6	4576	0.1
2584	4.8	2984	4.2	3384	3.3	3784	2.3	4184	0.6	4584	0.1
2592	4.8	2992	4.1	3392	3.3	3792	2.2	4192	0.5	4592	0.1
2600	4.8	3000	4.1	3400	3.2	3800	2.2	4200	0.5	4600	0.1
2608	4.7	3008	4.1	3408	3.2	3808	2.2	4208	0.5	4608	0.1
2616	4.7	3016	4.1	3416	3.2	3816	2.2	4216	0.5	4616	0.1
2624	4.7	3024	4.1	3424	3.2	3824	2.2	4224	0.5	4624	0.1
2632	4.7	3032	4.1	3432	3.2	3832	2.2	4232	0.5	4632	0.1
2640	4.7	3040	4.0	3440	3.1	3840	2.2	4240	0.4	4640	0.1
2648	4.7	3048	4.0	3448	3.1	3848	2.2	4248	0.4	4648	0.1
2656	4.7	3056	4.0	3456	3.1	3856	2.2	4256	0.4	4656	0.1
2664	4.7	3064	4.0	3464	3.1	3864	2.2	4264	0.4	4664	0.1
2672	4.7	3072	4.0	3472	3.1	3872	2.2	4272	0.4	4672	0.1
2680	4.6	3080	4.0	3480	3.0	3880	2.2	4280	0.4	4680	0.1
2688	4.6	3088	3.9	3488	3.0	3888	2.1	4288	0.4	4688	0.1
2696	4.6	3096	3.9	3496	3.0	3896	2.1	4296	0.4	4696	0.1
2704	4.6	3104	3.9	3504	3.0	3904	2.0	4304	0.3	4704	0.1
2712	4.6	3112	3.9	3512	3.0	3912	2.0	4312	0.3	4712	0.1
2720	4.6	3120	3.9	3520	2.9	3920	1.9	4320	0.3	4720	0.1
2728	4.6	3128	3.9	3528	2.9	3928	1.8	4328	0.3	4728	0.1
2736	4.6	3136	3.8	3536	2.9	3936	1.8	4336	0.3	4736	0.1
2744	4.6	3144	3.8	3544	2.9	3944	1.7	4344	0.3	4744	0.1
2752	4.6	3152	3.8	3552	2.9	3952	1.7	4352	0.3	4752	0.1
2760	4.5	3160	3.8	3560	2.8	3960	1.6	4360	0.3	4760	0.1
2768	4.5	3168	3.8	3568	2.8	3968	1.6	4368	0.3	4768	0.1
2776	4.5	3176	3.7	3576	2.8	3976	1.5	4376	0.3	4776	0.1
2784	4.5	3184	3.7	3584	2.8	3984	1.5	4384	0.3	4784	0.1
2792	4.5	3192	3.7	3592	2.8	3992	1.4	4392	0.2	4792	0.1
2800	4.5	3200	3.7	3600	2.7	4000	1.4	4400	0.2	4800	0.1

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Micro Drainage		Source Control 2020.1.3


Input Hydrograph

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4808	0.1	5208	0.0	5608	0.0	6008	0.0	6408	0.0	6808	0.0
4816	0.1	5216	0.0	5616	0.0	6016	0.0	6416	0.0	6816	0.0
4824	0.1	5224	0.0	5624	0.0	6024	0.0	6424	0.0	6824	0.0
4832	0.1	5232	0.0	5632	0.0	6032	0.0	6432	0.0	6832	0.0
4840	0.1	5240	0.0	5640	0.0	6040	0.0	6440	0.0	6840	0.0
4848	0.1	5248	0.0	5648	0.0	6048	0.0	6448	0.0	6848	0.0
4856	0.1	5256	0.0	5656	0.0	6056	0.0	6456	0.0	6856	0.0
4864	0.1	5264	0.0	5664	0.0	6064	0.0	6464	0.0	6864	0.0
4872	0.1	5272	0.0	5672	0.0	6072	0.0	6472	0.0	6872	0.0
4880	0.1	5280	0.0	5680	0.0	6080	0.0	6480	0.0	6880	0.0
4888	0.1	5288	0.0	5688	0.0	6088	0.0	6488	0.0	6888	0.0
4896	0.1	5296	0.0	5696	0.0	6096	0.0	6496	0.0	6896	0.0
4904	0.1	5304	0.0	5704	0.0	6104	0.0	6504	0.0	6904	0.0
4912	0.1	5312	0.0	5712	0.0	6112	0.0	6512	0.0	6912	0.0
4920	0.1	5320	0.0	5720	0.0	6120	0.0	6520	0.0	6920	0.0
4928	0.1	5328	0.0	5728	0.0	6128	0.0	6528	0.0	6928	0.0
4936	0.1	5336	0.0	5736	0.0	6136	0.0	6536	0.0	6936	0.0
4944	0.1	5344	0.0	5744	0.0	6144	0.0	6544	0.0	6944	0.0
4952	0.1	5352	0.0	5752	0.0	6152	0.0	6552	0.0	6952	0.0
4960	0.1	5360	0.0	5760	0.0	6160	0.0	6560	0.0	6960	0.0
4968	0.1	5368	0.0	5768	0.0	6168	0.0	6568	0.0	6968	0.0
4976	0.1	5376	0.0	5776	0.0	6176	0.0	6576	0.0	6976	0.0
4984	0.1	5384	0.0	5784	0.0	6184	0.0	6584	0.0	6984	0.0
4992	0.1	5392	0.0	5792	0.0	6192	0.0	6592	0.0	6992	0.0
5000	0.1	5400	0.0	5800	0.0	6200	0.0	6600	0.0	7000	0.0
5008	0.1	5408	0.0	5808	0.0	6208	0.0	6608	0.0	7008	0.0
5016	0.1	5416	0.0	5816	0.0	6216	0.0	6616	0.0	7016	0.0
5024	0.1	5424	0.0	5824	0.0	6224	0.0	6624	0.0	7024	0.0
5032	0.1	5432	0.0	5832	0.0	6232	0.0	6632	0.0	7032	0.0
5040	0.1	5440	0.0	5840	0.0	6240	0.0	6640	0.0	7040	0.0
5048	0.1	5448	0.0	5848	0.0	6248	0.0	6648	0.0	7048	0.0
5056	0.1	5456	0.0	5856	0.0	6256	0.0	6656	0.0	7056	0.0
5064	0.1	5464	0.0	5864	0.0	6264	0.0	6664	0.0	7064	0.0
5072	0.1	5472	0.0	5872	0.0	6272	0.0	6672	0.0	7072	0.0
5080	0.1	5480	0.0	5880	0.0	6280	0.0	6680	0.0	7080	0.0
5088	0.1	5488	0.0	5888	0.0	6288	0.0	6688	0.0	7088	0.0
5096	0.0	5496	0.0	5896	0.0	6296	0.0	6696	0.0	7096	0.0
5104	0.0	5504	0.0	5904	0.0	6304	0.0	6704	0.0	7104	0.0
5112	0.0	5512	0.0	5912	0.0	6312	0.0	6712	0.0	7112	0.0
5120	0.0	5520	0.0	5920	0.0	6320	0.0	6720	0.0	7120	0.0
5128	0.0	5528	0.0	5928	0.0	6328	0.0	6728	0.0	7128	0.0
5136	0.0	5536	0.0	5936	0.0	6336	0.0	6736	0.0	7136	0.0
5144	0.0	5544	0.0	5944	0.0	6344	0.0	6744	0.0	7144	0.0
5152	0.0	5552	0.0	5952	0.0	6352	0.0	6752	0.0	7152	0.0
5160	0.0	5560	0.0	5960	0.0	6360	0.0	6760	0.0	7160	0.0
5168	0.0	5568	0.0	5968	0.0	6368	0.0	6768	0.0	7168	0.0
5176	0.0	5576	0.0	5976	0.0	6376	0.0	6776	0.0	7176	0.0
5184	0.0	5584	0.0	5984	0.0	6384	0.0	6784	0.0	7184	0.0
5192	0.0	5592	0.0	5992	0.0	6392	0.0	6792	0.0	7192	0.0
5200	0.0	5600	0.0	6000	0.0	6400	0.0	6800	0.0	7200	0.0

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Micro Drainage	Source Control 2020.1.3	


Input Hydrograph

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
7208	0.0	7608	0.0	8008	0.0	8408	0.0	8808	0.0	9208	0.0
7216	0.0	7616	0.0	8016	0.0	8416	0.0	8816	0.0	9216	0.0
7224	0.0	7624	0.0	8024	0.0	8424	0.0	8824	0.0	9224	0.0
7232	0.0	7632	0.0	8032	0.0	8432	0.0	8832	0.0	9232	0.0
7240	0.0	7640	0.0	8040	0.0	8440	0.0	8840	0.0	9240	0.0
7248	0.0	7648	0.0	8048	0.0	8448	0.0	8848	0.0	9248	0.0
7256	0.0	7656	0.0	8056	0.0	8456	0.0	8856	0.0	9256	0.0
7264	0.0	7664	0.0	8064	0.0	8464	0.0	8864	0.0	9264	0.0
7272	0.0	7672	0.0	8072	0.0	8472	0.0	8872	0.0	9272	0.0
7280	0.0	7680	0.0	8080	0.0	8480	0.0	8880	0.0	9280	0.0
7288	0.0	7688	0.0	8088	0.0	8488	0.0	8888	0.0	9288	0.0
7296	0.0	7696	0.0	8096	0.0	8496	0.0	8896	0.0	9296	0.0
7304	0.0	7704	0.0	8104	0.0	8504	0.0	8904	0.0	9304	0.0
7312	0.0	7712	0.0	8112	0.0	8512	0.0	8912	0.0	9312	0.0
7320	0.0	7720	0.0	8120	0.0	8520	0.0	8920	0.0	9320	0.0
7328	0.0	7728	0.0	8128	0.0	8528	0.0	8928	0.0	9328	0.0
7336	0.0	7736	0.0	8136	0.0	8536	0.0	8936	0.0	9336	0.0
7344	0.0	7744	0.0	8144	0.0	8544	0.0	8944	0.0	9344	0.0
7352	0.0	7752	0.0	8152	0.0	8552	0.0	8952	0.0	9352	0.0
7360	0.0	7760	0.0	8160	0.0	8560	0.0	8960	0.0	9360	0.0
7368	0.0	7768	0.0	8168	0.0	8568	0.0	8968	0.0	9368	0.0
7376	0.0	7776	0.0	8176	0.0	8576	0.0	8976	0.0	9376	0.0
7384	0.0	7784	0.0	8184	0.0	8584	0.0	8984	0.0	9384	0.0
7392	0.0	7792	0.0	8192	0.0	8592	0.0	8992	0.0	9392	0.0
7400	0.0	7800	0.0	8200	0.0	8600	0.0	9000	0.0	9400	0.0
7408	0.0	7808	0.0	8208	0.0	8608	0.0	9008	0.0	9408	0.0
7416	0.0	7816	0.0	8216	0.0	8616	0.0	9016	0.0	9416	0.0
7424	0.0	7824	0.0	8224	0.0	8624	0.0	9024	0.0	9424	0.0
7432	0.0	7832	0.0	8232	0.0	8632	0.0	9032	0.0	9432	0.0
7440	0.0	7840	0.0	8240	0.0	8640	0.0	9040	0.0	9440	0.0
7448	0.0	7848	0.0	8248	0.0	8648	0.0	9048	0.0	9448	0.0
7456	0.0	7856	0.0	8256	0.0	8656	0.0	9056	0.0	9456	0.0
7464	0.0	7864	0.0	8264	0.0	8664	0.0	9064	0.0	9464	0.0
7472	0.0	7872	0.0	8272	0.0	8672	0.0	9072	0.0	9472	0.0
7480	0.0	7880	0.0	8280	0.0	8680	0.0	9080	0.0	9480	0.0
7488	0.0	7888	0.0	8288	0.0	8688	0.0	9088	0.0	9488	0.0
7496	0.0	7896	0.0	8296	0.0	8696	0.0	9096	0.0	9496	0.0
7504	0.0	7904	0.0	8304	0.0	8704	0.0	9104	0.0	9504	0.0
7512	0.0	7912	0.0	8312	0.0	8712	0.0	9112	0.0	9512	0.0
7520	0.0	7920	0.0	8320	0.0	8720	0.0	9120	0.0	9520	0.0
7528	0.0	7928	0.0	8328	0.0	8728	0.0	9128	0.0	9528	0.0
7536	0.0	7936	0.0	8336	0.0	8736	0.0	9136	0.0	9536	0.0
7544	0.0	7944	0.0	8344	0.0	8744	0.0	9144	0.0	9544	0.0
7552	0.0	7952	0.0	8352	0.0	8752	0.0	9152	0.0	9552	0.0
7560	0.0	7960	0.0	8360	0.0	8760	0.0	9160	0.0	9560	0.0
7568	0.0	7968	0.0	8368	0.0	8768	0.0	9168	0.0	9568	0.0
7576	0.0	7976	0.0	8376	0.0	8776	0.0	9176	0.0	9576	0.0
7584	0.0	7984	0.0	8384	0.0	8784	0.0	9184	0.0	9584	0.0
7592	0.0	7992	0.0	8392	0.0	8792	0.0	9192	0.0	9592	0.0
7600	0.0	8000	0.0	8400	0.0	8800	0.0	9200	0.0	9600	0.0

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTIONS 3 - BASIN CONS STORMS	
Date 18/01/2024 14:28 File 8211067 - OPTION 3 - OU...	Designed by S McNair Checked by C Salt	
Micro Drainage		Source Control 2020.1.3

Input Hydrograph

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
9608	0.0	9688	0.0	9768	0.0	9848	0.0	9928	0.0	10008	0.0
9616	0.0	9696	0.0	9776	0.0	9856	0.0	9936	0.0	10016	0.0
9624	0.0	9704	0.0	9784	0.0	9864	0.0	9944	0.0	10024	0.0
9632	0.0	9712	0.0	9792	0.0	9872	0.0	9952	0.0	10032	0.0
9640	0.0	9720	0.0	9800	0.0	9880	0.0	9960	0.0	10040	0.0
9648	0.0	9728	0.0	9808	0.0	9888	0.0	9968	0.0	10048	0.0
9656	0.0	9736	0.0	9816	0.0	9896	0.0	9976	0.0	10056	0.0
9664	0.0	9744	0.0	9824	0.0	9904	0.0	9984	0.0	10064	0.0
9672	0.0	9752	0.0	9832	0.0	9912	0.0	9992	0.0	10072	0.0
9680	0.0	9760	0.0	9840	0.0	9920	0.0	10000	0.0	10080	0.0

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTIONS 3 - BASIN CONS STORMS	
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Micro Drainage	Source Control 2020.1.3	

Model Details

Storage is Online Cover Level (m) 98.300

Infiltration Basin Structure

Invert Level (m) 97.100 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 1.00
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	512.0	0.900	751.5	1.200	841.5

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0068-2000-0905-2000
 Design Head (m) 0.905
 Design Flow (l/s) 2.0
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available Yes
 Diameter (mm) 68
 Invert Level (m) 97.095
 Minimum Outlet Pipe Diameter (mm) 100
 Suggested Manhole Diameter (mm) 1200

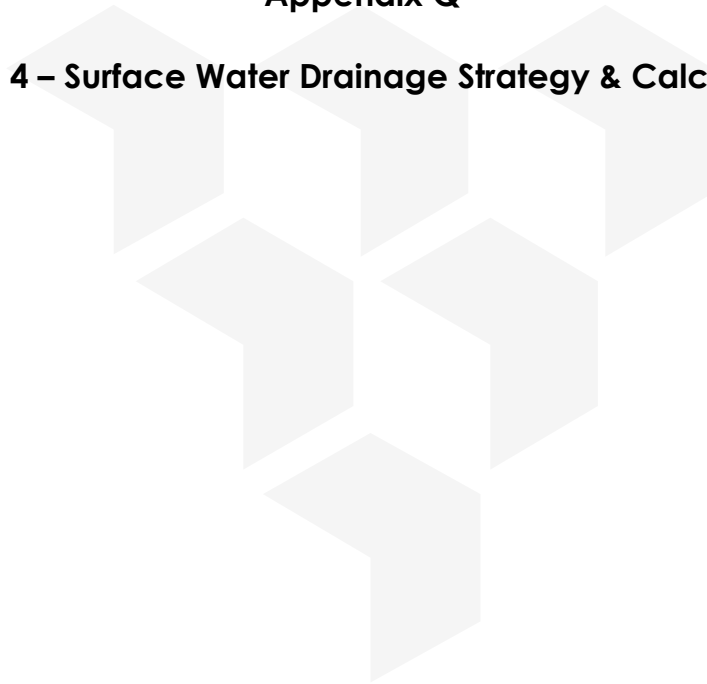
Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.905	2.0
Flush-Flo™	0.276	2.0
Kick-Flo®	0.567	1.6
Mean Flow over Head Range	-	1.8

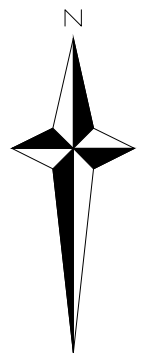
The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.7	1.200	2.3	3.000	3.5	7.000	5.2
0.200	2.0	1.400	2.4	3.500	3.7	7.500	5.3
0.300	2.0	1.600	2.6	4.000	4.0	8.000	5.5
0.400	1.9	1.800	2.7	4.500	4.2	8.500	5.6
0.500	1.8	2.000	2.9	5.000	4.4	9.000	5.8
0.600	1.7	2.200	3.0	5.500	4.6	9.500	6.0
0.800	1.9	2.400	3.1	6.000	4.8		
1.000	2.1	2.600	3.2	6.500	5.0		

Appendix Q

Option 4 – Surface Water Drainage Strategy & Calculations





ATTENUATION BASIN
 CL: 97.650m
 IL: 96.390m
 Max. Water Depth in 1% AEP + 40% CC Storm: 0.960m
 Plan Area: 1051m²
 Total Basin Volume: 749m³
 Attenuation Volume: 522m³
 Total Depth: 1.29m

S4.2
 ATTENUATION GEOCELLULAR CRATES
 CL: 98.800m
 IL: 97.400m
 Dims: 7.50m x 10.0m x 0.80m

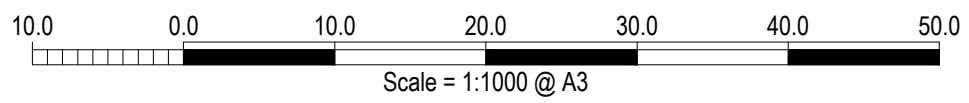
S10.1
 ATTENUATION GEOCELLULAR CRATES
 CL: 102.200
 IL: 100.500
 No infiltration to occur and run-off to be attenuated only.
 Dims: 6.0m x 6.00m x 0.40m

S5.4
 ATTENUATION GEOCELLULAR CRATES
 CL: 99.290
 IL: 97.785
 No infiltration to occur and run-off to be attenuated only.
 Dims: 3.50m x 15.0m x 0.80m

S8.2
 ATTENUATION GEOCELLULAR CRATES
 CL: 101.600
 IL: 100.000
 No infiltration to occur and run-off to be attenuated only.
 Dims: 6.0m x 10.5m x 0.80m

S9.1
 ATTENUATION GEOCELLULAR CRATES
 CL: 101.200
 IL: 100.000
 No infiltration to occur and run-off to be attenuated only.
 Dims: 6.5m x 12.0m x 0.80m

Existing Pond to be retained with any exceedance to be routed via open space and/or roads, away from the dwellings.

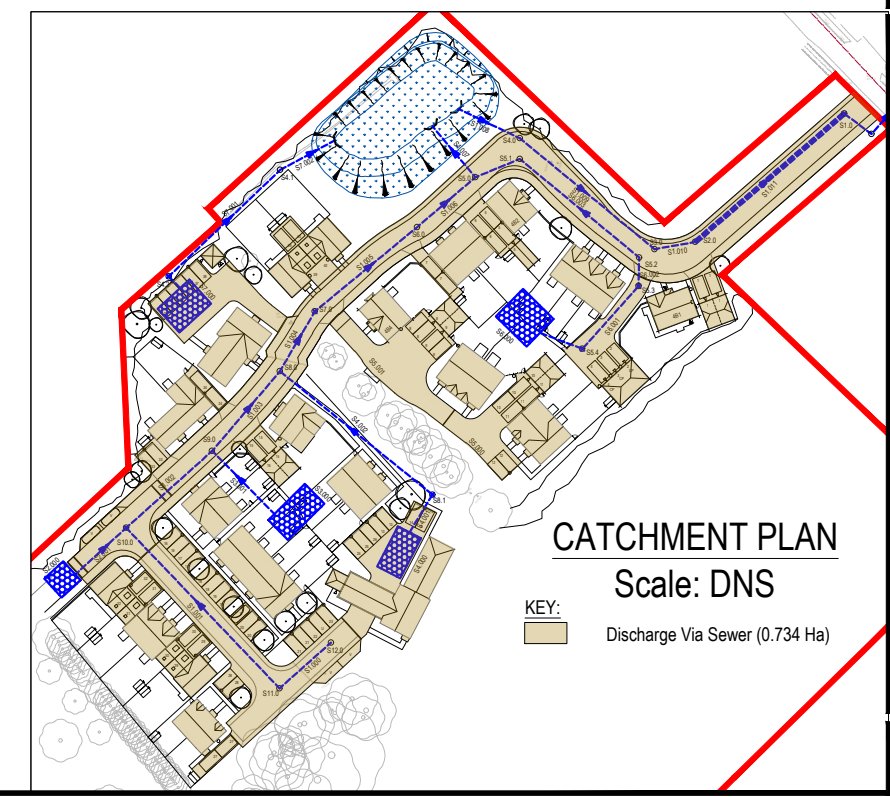


- NOTES**
1. Dimensions not to be scaled from this drawing for construction purposes.
 2. This drawing should be read in conjunction with the associated Flood Risk Assessment and all relevant standards.
 3. All drainage features are indicative only for preliminary design purposes and are subject to detailed design. All levels shown in meters AOD.
 4. Site Layout taken from Thrive Architects drawing OBS180824 CMP_01 P10, dated June 2022.
 5. Topographical levels taken from Greenhatch group drawing 42917_T1, dated February 2022.

KEY

- Application Boundary
- Land Under Applicant's Control
- Surface Water Sewer
- - - - Surface Water Box Culvert
- · - · - Ex. Thames Water Foul Sewer
- Manhole Chamber
- ⊙ Flow Control Chamber
- ⌒ Headwall
- ⬆ S2.000 MicroDrainage Pipe Reference Direction of Flow
- Proposed Permeable Paving with Deepened Porous Sub-base (Attenuation only)
- SuDS Basin (Attenuation Only)
- Geocellular Crates (Attenuation Only)
- Private Parking Area (Attenuation Only)

P1	Issued with Technical Note.	18/01/2024 SM	JB/CS
Rev.	Description	Date	Chkd



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Client :
Obsidian Strategic Asset Management

Project :
**Land off London Lane,
 Ascott-under-Wychwood**

Title :
**Outline Surface Water Drainage Strategy
 Option 4 - Discharge to Sewer**

Project Engineer : S McNair Scale : 1:1000 @ A3
 Project Director : J Birch Date : January 2024
 Status : **PLANNING**

Drawing No. 8211067 - SK10 Rev **P1**

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood GF Run-off - Developed Area	
Date 18/01/2024 13:06 File 8211067 - OPTION 2 - Ge...	Designed by S McNair Checked by C Salt	
Micro Drainage	Source Control 2020.1.3	

ICP SUDS Mean Annual Flood

Input


Return Period (years)	100	Soil	0.450
Area (ha)	1.339	Urban	0.000
SAAR (mm)	750	Region Number	Region 6

Results 1/s

QBAR Rural 6.4
QBAR Urban 6.4

Q100 years 20.3

Q1 year 5.4
Q30 years 14.5
Q100 years 20.3

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 4 - FW OUTFALL	
Date 18/01/2024 15:18 File 8211067 - OPTION 4 - OU...	Designed by S McNair Checked by C Salt	
Micro Drainage	Network 2020.1.3	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model

Return Period (years)	100
FEH Rainfall Version	2013
Site Location GB 430500 218950 SP 30500 18950	
Data Type	Catchment
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.900
PIMP (%)	100
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.200
Maximum Backdrop Height (m)	1.500
Min Design Depth for Optimisation (m)	1.200
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

PIPELINE SCHEDULES for Storm

Upstream Manhole

- Indicates pipe length does not match coordinates

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	o	150	S12.0	102.200	101.000	1.050	Open Manhole	1200
S1.001	o	150	S11.0	102.550	100.630	1.770	Open Manhole	1200
S2.000	o	150	SDUMMY10.1	104.000	103.000	0.850	Open Manhole	1200
S2.001	o	150	S10.1	102.200	100.500	1.550	Open Manhole	1200
S1.002	o	225	S10.0	101.550	99.905	1.420	Open Manhole	1200
S3.000	o	150	SDUMMY9.1	103.000	101.500	1.350	Open Manhole	1200
S3.001	o	150	S9.1	101.200	100.000	1.050	Open Manhole	1200
S1.003	o	225	S9.0	101.200	99.785	1.190	Open Manhole	1200
S4.000	o	150	SDUMMY8.2	103.000	102.000	0.850	Open Manhole	300
S4.001	o	150	S8.2	101.600	100.200	1.250	Open Manhole	1200
S4.002	o	150	S8.1	101.600	100.130	1.320	Open Manhole	1200
S1.004	o	225	S8.0	100.550	99.410	0.915	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	16.108	43.5	S11.0	102.550	100.630	1.770	Open Manhole	1200
S1.001	51.732	79.6	S10.0	101.550	99.980	1.420	Open Manhole	1200
S2.000	7.301	2.9	S10.1	102.200	100.500	1.550	Open Manhole	1200
S2.001	16.077	30.9	S10.0	101.550	99.980	1.420	Open Manhole	1200
S1.002	26.871	223.9	S9.0	101.200	99.785	1.190	Open Manhole	1200
S3.000	6.273	4.2	S9.1	101.200	100.000	1.050	Open Manhole	1200
S3.001	20.784	148.5	S9.0	101.200	99.860	1.190	Open Manhole	1200
S1.003	24.326	64.9	S8.0	100.550	99.410	0.915	Open Manhole	1200
S4.000	11.743	6.5	S8.2	101.600	100.200	1.250	Open Manhole	1200
S4.001	10.372	148.2	S8.1	101.600	100.130	1.320	Open Manhole	1200
S4.002	45.703	70.9	S8.0	100.550	99.485	0.915	Open Manhole	1200
S1.004	16.170	215.6	S7.0	100.600	99.335	1.040	Open Manhole	1200




PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S5.000	o	150	S7.2	101.350	100.120	1.080	Open Manhole	1200
S5.001	o	150	S7.1	101.300	99.930	1.220	Open Manhole	1200
S1.005	o	225	S7.0	100.600	99.335	1.040	Open Manhole	1200
S1.006	o	225	S6.0	99.750	98.550	0.975	Open Manhole	1200
S6.000	o	150	SDUMMY5.4	102.000	101.000	0.850	Open Manhole	1200
S6.001	o	150	S5.4	100.350	98.505	1.695	Open Manhole	1200
S6.002	o	150	S5.3	99.500	98.370	0.980	Open Manhole	1200
S6.003	o	150	S5.2	99.250	98.325	0.775	Open Manhole	1200
S6.004	o	225	S5.1	98.750	98.050	0.475	Open Manhole	1200
S1.007	o	300	S5.0	99.100	97.825	0.975	Open Manhole	1200
S7.000	o	150	SDUMMY4.2	100.000	99.000	0.850	Open Manhole	1200
S7.001	o	150	S4.2	98.550	97.220	1.180	Open Manhole	1200
S7.002	o	150	S4.1	98.100	96.980	0.970	Open Manhole	1200
S1.008	o	300	SBASIN	97.650	96.390	0.960	Open Manhole	1200
S1.009	o	300	S4.0	98.600	96.340	1.960	Open Manhole	1200
S1.010	o	300	S3.0	99.290	96.200	2.790	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S5.000	27.305	143.7	S7.1	101.300	99.930	1.220	Open Manhole	1200
S5.001	22.547	43.8	S7.0	100.600	99.415	1.035	Open Manhole	1200
S1.005	31.002	39.5	S6.0	99.750	98.550	0.975	Open Manhole	1200
S1.006	17.788	27.4	S5.0	99.100	97.900	0.975	Open Manhole	1200
S6.000	9.600	3.8	S5.4	100.350	98.505	1.695	Open Manhole	1200
S6.001	19.611	145.3	S5.3	99.500	98.370	0.980	Open Manhole	1200
S6.002	6.681	148.5	S5.2	99.250	98.325	0.775	Open Manhole	1200
S6.003	36.045	147.1	S5.1	98.750	98.080	0.520	Open Manhole	1200
S6.004	11.207	106.7	S5.0	99.100	97.945	0.930	Open Manhole	1200
S1.007	15.504#	10.8	SBASIN	97.650	96.390	0.960	Open Manhole	1200
S7.000	8.002	4.5	S4.2	98.550	97.220	1.180	Open Manhole	1200
S7.001	35.872	149.5	S4.1	98.100	96.980	0.970	Open Manhole	1200
S7.002	14.493#	32.9	SBASIN	97.650	96.540	0.960	Open Manhole	1200
S1.008	15.000#	300.0	S4.0	98.600	96.340	1.960	Open Manhole	1200
S1.009	40.645	290.3	S3.0	99.290	96.200	2.790	Open Manhole	1200
S1.010	9.661	276.0	S2.0	99.400	96.165	2.935	Open Manhole	1200

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Cornerstone Court 62 Foxhall Road Didcot OX11 7AD	Land West of London Lane Ascott-under-Wychwood OPTION 4 - FW OUTFALL	
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Micro Drainage	Network 2020.1.3	


PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.011	800 []	300	S2.0	99.400	96.165	2.435	Open Manhole	1200
S1.012	o	150	S1.0	98.180	96.010	2.020	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.011	45.810	295.5	S1.0	98.180	96.010	1.370	Open Manhole	1200
S1.012	12.295	153.7	S	97.600	95.930	1.520	Open Manhole	150


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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	0.018	0.018	0.018
1.001	-	-	100	0.010	0.010	0.010
2.000	-	-	100	0.000	0.000	0.000
2.001	-	-	100	0.022	0.022	0.022
1.002	-	-	100	0.119	0.119	0.119
3.000	-	-	100	0.000	0.000	0.000
3.001	-	-	100	0.022	0.022	0.022
1.003	-	-	100	0.028	0.028	0.028
4.000	-	-	100	0.000	0.000	0.000
4.001	-	-	100	0.065	0.065	0.065
4.002	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.039	0.039	0.039
5.000	-	-	100	0.010	0.010	0.010
5.001	-	-	100	0.014	0.014	0.014
1.005	-	-	100	0.029	0.029	0.029
1.006	-	-	100	0.019	0.019	0.019
6.000	-	-	100	0.000	0.000	0.000
6.001	-	-	100	0.072	0.072	0.072
6.002	-	-	100	0.033	0.033	0.033
6.003	-	-	100	0.017	0.017	0.017
6.004	-	-	100	0.053	0.053	0.053
1.007	-	-	100	0.060	0.060	0.060
7.000	-	-	100	0.000	0.000	0.000
7.001	-	-	100	0.066	0.066	0.066
7.002	-	-	100	0.021	0.021	0.021
1.008	-	-	100	0.000	0.000	0.000
1.009	-	-	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	0.042	0.042	0.042
				Total	Total	Total
				0.759	0.759	0.759

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)
S1.012	S	97.600	95.930	95.930	150	0

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Online Controls for Storm

Hydro-Brake® Optimum Manhole: S10.1, DS/PN: S2.001, Volume (m³): 2.0

Unit Reference	MD-SCU-0032-1000-0800-1000
Design Head (m)	0.800
Design Flow (l/s)	1.0
Flush-Flo™	Calculated
Objective	Linear discharge profile
Application	Surface
Sump Available	Yes
Diameter (mm)	32
Invert Level (m)	100.500
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200


Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.800	1.0
Flush-Flo™	0.047	0.3
Kick-Flo®	0.047	0.3
Mean Flow over Head Range	-	0.7

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.4	1.200	1.2	3.000	1.8	7.000	2.7
0.200	0.5	1.400	1.3	3.500	2.0	7.500	2.8
0.300	0.6	1.600	1.4	4.000	2.1	8.000	2.9
0.400	0.7	1.800	1.4	4.500	2.2	8.500	3.0
0.500	0.8	2.000	1.5	5.000	2.3	9.000	3.1
0.600	0.9	2.200	1.6	5.500	2.4	9.500	3.1
0.800	1.0	2.400	1.6	6.000	2.5		
1.000	1.1	2.600	1.7	6.500	2.6		

Hydro-Brake® Optimum Manhole: S9.1, DS/PN: S3.001, Volume (m³): 1.4

Unit Reference	MD-SCU-0033-1000-0700-1000
Design Head (m)	0.700
Design Flow (l/s)	1.0
Flush-Flo™	Calculated
Objective	Linear discharge profile
Application	Surface
Sump Available	Yes
Diameter (mm)	33
Invert Level (m)	100.000
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

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Hydro-Brake® Optimum Manhole: S9.1, DS/PN: S3.001, Volume (m³): 1.4

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.700	1.0
Flush-Flo™	0.049	0.3
Kick-Flo®	0.049	0.3
Mean Flow over Head Range	-	0.7

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.4	1.200	1.3	3.000	1.9	7.000	2.9
0.200	0.6	1.400	1.4	3.500	2.1	7.500	3.0
0.300	0.7	1.600	1.5	4.000	2.2	8.000	3.1
0.400	0.8	1.800	1.5	4.500	2.3	8.500	3.2
0.500	0.9	2.000	1.6	5.000	2.5	9.000	3.3
0.600	0.9	2.200	1.7	5.500	2.6	9.500	3.4
0.800	1.1	2.400	1.8	6.000	2.7		
1.000	1.2	2.600	1.8	6.500	2.8		


Complex Manhole: S9.0, DS/PN: S1.003, Volume (m³): 3.0

Hydro-Brake® Optimum

Unit Reference	MD-SHE-0073-2000-0600-2000
Design Head (m)	0.600
Design Flow (l/s)	2.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	73
Invert Level (m)	99.785
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.600	2.0
Flush-Flo™	0.177	2.0
Kick-Flo®	0.397	1.7
Mean Flow over Head Range	-	1.7

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

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Hydro-Brake® Optimum

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.9	1.200	2.7	3.000	4.2	7.000	6.3
0.200	2.0	1.400	2.9	3.500	4.5	7.500	6.5
0.300	1.9	1.600	3.1	4.000	4.8	8.000	6.7
0.400	1.7	1.800	3.3	4.500	5.1	8.500	6.9
0.500	1.8	2.000	3.5	5.000	5.3	9.000	7.1
0.600	2.0	2.200	3.6	5.500	5.6	9.500	7.3
0.800	2.3	2.400	3.8	6.000	5.8		
1.000	2.5	2.600	3.9	6.500	6.0		

Weir

Discharge Coef 0.544 Width (m) 1.200 Invert Level (m) 100.385


Hydro-Brake® Optimum Manhole: S8.2, DS/PN: S4.001, Volume (m³): 1.8

Unit Reference	MD-SCU-0032-1000-0800-1000
Design Head (m)	0.800
Design Flow (l/s)	1.0
Flush-Flo™	Calculated
Objective	Linear discharge profile
Application	Surface
Sump Available	Yes
Diameter (mm)	32
Invert Level (m)	100.200
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.800	1.0
Flush-Flo™	0.047	0.3
Kick-Flo®	0.047	0.3
Mean Flow over Head Range	-	0.7

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.4	1.200	1.2	3.000	1.8	7.000	2.7
0.200	0.5	1.400	1.3	3.500	2.0	7.500	2.8
0.300	0.6	1.600	1.4	4.000	2.1	8.000	2.9
0.400	0.7	1.800	1.4	4.500	2.2	8.500	3.0
0.500	0.8	2.000	1.5	5.000	2.3	9.000	3.1
0.600	0.9	2.200	1.6	5.500	2.4	9.500	3.1
0.800	1.0	2.400	1.6	6.000	2.5		
1.000	1.1	2.600	1.7	6.500	2.6		

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Complex Manhole: S7.0, DS/PN: S1.005, Volume (m³): 2.4

Hydro-Brake® Optimum

Unit Reference	MD-SCU-0086-5000-0400-5000
Design Head (m)	0.400
Design Flow (l/s)	5.0
Flush-Flo™	Calculated
Objective	Linear discharge profile
Application	Surface
Sump Available	Yes
Diameter (mm)	86
Invert Level (m)	99.335
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.400	5.0
Flush-Flo™	0.113	3.0
Kick-Flo®	0.129	3.0
Mean Flow over Head Range	-	3.3

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated


Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.9	1.200	8.4	3.000	12.9	7.000	19.5
0.200	3.6	1.400	9.0	3.500	13.9	7.500	20.2
0.300	4.4	1.600	9.6	4.000	14.8	8.000	20.9
0.400	5.0	1.800	10.1	4.500	15.6	8.500	21.6
0.500	5.5	2.000	10.6	5.000	16.5	9.000	22.2
0.600	6.0	2.200	11.1	5.500	17.3	9.500	22.8
0.800	6.9	2.400	11.6	6.000	18.1		
1.000	7.7	2.600	12.1	6.500	18.8		

Weir

Discharge Coef 0.544 Width (m) 1.200 Invert Level (m) 99.735

Hydro-Brake® Optimum Manhole: S5.4, DS/PN: S6.001, Volume (m³): 2.2

Unit Reference	MD-SCU-0031-1000-0875-1000
Design Head (m)	0.875
Design Flow (l/s)	1.0
Flush-Flo™	Calculated
Objective	Linear discharge profile
Application	Surface
Sump Available	Yes
Diameter (mm)	31

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Hydro-Brake® Optimum Manhole: S5.4, DS/PN: S6.001, Volume (m³): 2.2

Invert Level (m) 98.505
Minimum Outlet Pipe Diameter (mm) 75
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.875	1.0
Flush-Flo™	0.046	0.3
Kick-Flo®	0.046	0.3
Mean Flow over Head Range	-	0.7

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.4	1.200	1.2	3.000	1.8	7.000	2.6
0.200	0.5	1.400	1.2	3.500	1.9	7.500	2.7
0.300	0.6	1.600	1.3	4.000	2.0	8.000	2.8
0.400	0.7	1.800	1.4	4.500	2.1	8.500	2.9
0.500	0.8	2.000	1.5	5.000	2.2	9.000	2.9
0.600	0.8	2.200	1.5	5.500	2.3	9.500	3.0
0.800	1.0	2.400	1.6	6.000	2.4		
1.000	1.1	2.600	1.6	6.500	2.5		


Complex Manhole: S5.3, DS/PN: S6.002, Volume (m³): 1.6

Hydro-Brake® Optimum

Unit Reference MD-SCU-0033-1000-0700-1000
Design Head (m) 0.700
Design Flow (l/s) 1.0
Flush-Flo™ Calculated
Objective Linear discharge profile
Application Surface
Sump Available Yes
Diameter (mm) 33
Invert Level (m) 98.370
Minimum Outlet Pipe Diameter (mm) 75
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.700	1.0
Flush-Flo™	0.049	0.3
Kick-Flo®	0.049	0.3
Mean Flow over Head Range	-	0.7

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

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Hydro-Brake® Optimum

Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.4	1.200	1.3	3.000	1.9	7.000	2.9
0.200	0.6	1.400	1.4	3.500	2.1	7.500	3.0
0.300	0.7	1.600	1.5	4.000	2.2	8.000	3.1
0.400	0.8	1.800	1.5	4.500	2.3	8.500	3.2
0.500	0.9	2.000	1.6	5.000	2.5	9.000	3.3
0.600	0.9	2.200	1.7	5.500	2.6	9.500	3.4
0.800	1.1	2.400	1.8	6.000	2.7		
1.000	1.2	2.600	1.8	6.500	2.8		

Weir

Discharge Coef 0.544 Width (m) 1.200 Invert Level (m) 99.070


Hydro-Brake® Optimum Manhole: S4.2, DS/PN: S7.001, Volume (m³): 1.6

Unit Reference	MD-SCU-0032-1000-0800-1000
Design Head (m)	0.800
Design Flow (l/s)	1.0
Flush-Flo™	Calculated
Objective	Linear discharge profile
Application	Surface
Sump Available	Yes
Diameter (mm)	32
Invert Level (m)	97.220
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.800	1.0
Flush-Flo™	0.047	0.3
Kick-Flo®	0.047	0.3
Mean Flow over Head Range	-	0.7

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.4	0.800	1.0	2.000	1.5	4.000	2.1
0.200	0.5	1.000	1.1	2.200	1.6	4.500	2.2
0.300	0.6	1.200	1.2	2.400	1.6	5.000	2.3
0.400	0.7	1.400	1.3	2.600	1.7	5.500	2.4
0.500	0.8	1.600	1.4	3.000	1.8	6.000	2.5
0.600	0.9	1.800	1.4	3.500	2.0	6.500	2.6

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Hydro-Brake® Optimum Manhole: S4.2, DS/PN: S7.001, Volume (m³): 1.6

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
7.000	2.7	8.000	2.9	9.000	3.1		
7.500	2.8	8.500	3.0	9.500	3.1		

Hydro-Brake® Optimum Manhole: SBASIN, DS/PN: S1.008, Volume (m³): 2.7

Unit Reference	MD-SHE-0089-3500-0960-3500
Design Head (m)	0.960
Design Flow (l/s)	3.5
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	89
Invert Level (m)	96.390
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200


Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.960	3.5
Flush-Flo™	0.288	3.5
Kick-Flo®	0.609	2.8
Mean Flow over Head Range	-	3.1

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 then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.8	1.200	3.9	3.000	5.9	7.000	8.9
0.200	3.4	1.400	4.2	3.500	6.4	7.500	9.2
0.300	3.5	1.600	4.4	4.000	6.8	8.000	9.4
0.400	3.4	1.800	4.7	4.500	7.2	8.500	9.7
0.500	3.3	2.000	4.9	5.000	7.6	9.000	10.0
0.600	2.9	2.200	5.1	5.500	7.9	9.500	10.3
0.800	3.2	2.400	5.4	6.000	8.2		
1.000	3.6	2.600	5.6	6.500	8.6		

Hydro-Brake® Optimum Manhole: S1.0, DS/PN: S1.012, Volume (m³): 11.3

Unit Reference	MD-SHE-0084-3500-1340-3500
Design Head (m)	1.340
Design Flow (l/s)	3.5
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	84

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Hydro-Brake® Optimum Manhole: S1.0, DS/PN: S1.012, Volume (m³): 11.3

Invert Level (m) 96.010
Minimum Outlet Pipe Diameter (mm) 100
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.340	3.5
Flush-Flo™	0.369	3.3
Kick-Flo®	0.748	2.7
Mean Flow over Head Range	-	3.0

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.5	1.200	3.3	3.000	5.1	7.000	7.6
0.200	3.1	1.400	3.6	3.500	5.5	7.500	7.8
0.300	3.3	1.600	3.8	4.000	5.8	8.000	8.1
0.400	3.3	1.800	4.0	4.500	6.1	8.500	8.3
0.500	3.3	2.000	4.2	5.000	6.5	9.000	8.5
0.600	3.1	2.200	4.4	5.500	6.8	9.500	8.8
0.800	2.8	2.400	4.6	6.000	7.0		
1.000	3.1	2.600	4.8	6.500	7.3		

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Storage Structures for Storm

Cellular Storage Manhole: S10.1, DS/PN: S2.001

Invert Level (m) 100.500 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	36.0	36.0	0.500	0.0	45.6
0.400	36.0	45.6			

Porous Car Park Manhole: S10.0, DS/PN: S1.002

Infiltration Coefficient Base (m/hr) 0.00000 Width (m) 3.8
 Membrane Percolation (mm/hr) 1000 Length (m) 37.7
 Max Percolation (l/s) 39.8 Slope (1:X) 80.0
 Safety Factor 2.0 Depression Storage (mm) 5
 Porosity 0.30 Evaporation (mm/day) 3
 Invert Level (m) 100.550 Cap Volume Depth (m) 0.600

Cellular Storage Manhole: S9.1, DS/PN: S3.001

Invert Level (m) 100.000 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	78.0	78.0	0.900	0.0	107.6
0.800	78.0	107.6			


Cellular Storage Manhole: S8.2, DS/PN: S4.001

Invert Level (m) 100.200 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	63.0	63.0	0.900	0.0	89.4
0.800	63.0	89.4			

Porous Car Park Manhole: S7.2, DS/PN: S5.000

Infiltration Coefficient Base (m/hr) 0.00000 Width (m) 4.8
 Membrane Percolation (mm/hr) 1000 Length (m) 25.5
 Max Percolation (l/s) 34.0 Slope (1:X) 0.0
 Safety Factor 2.0 Depression Storage (mm) 5
 Porosity 0.30 Evaporation (mm/day) 3
 Invert Level (m) 100.120 Cap Volume Depth (m) 0.500

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Porous Car Park Manhole: S7.1, DS/PN: S5.001

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	2.5
Membrane Percolation (mm/hr)	1000	Length (m)	27.0
Max Percolation (l/s)	18.8	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	99.930	Cap Volume Depth (m)	0.500

Porous Car Park Manhole: S7.0, DS/PN: S1.005

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.7
Membrane Percolation (mm/hr)	1000	Length (m)	15.0
Max Percolation (l/s)	23.8	Slope (1:X)	20.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	99.420	Cap Volume Depth (m)	0.500

Cellular Storage Manhole: S5.4, DS/PN: S6.001

Invert Level (m)	98.505	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	90.0	90.0	0.900	0.0	120.4
0.800	90.0	120.4			

Porous Car Park Manhole: S5.3, DS/PN: S6.002

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	4.1
Membrane Percolation (mm/hr)	1000	Length (m)	45.0
Max Percolation (l/s)	51.3	Slope (1:X)	23.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	98.600	Cap Volume Depth (m)	0.500


Cellular Storage Manhole: S4.2, DS/PN: S7.001

Invert Level (m)	97.220	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	80.0	80.0	0.900	0.0	108.8
0.800	80.0	108.8			

Infiltration Basin Manhole: SBASIN, DS/PN: S1.008


Invert Level (m)	96.390	Infiltration Coefficient Side (m/hr)	0.00000
Infiltration Coefficient Base (m/hr)	0.00000	Safety Factor	2.0

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Infiltration Basin Manhole: SBASIN, DS/PN: S1.008

Porosity 1.00

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	405.0	0.960	636.5	1.260	719.6

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Micro Drainage	Network 2020.1.3	

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 Storage Structures 11
Number of Online Controls 10 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0


Synthetic Rainfall Details

Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 430500 218950 SP 30500 18950
Data Type Catchment
Cv (Summer) 0.750
Cv (Winter) 0.840

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


Profile(s) Summer and Winter
Duration(s) (mins) 60, 120, 240, 360, 480, 960, 1440, 2160,
2880, 4320, 5760
Return Period(s) (years) 2, 10, 30, 100
Climate Change (%) 0, 0, 0, 40

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap.
S1.000	S12.0	60 minute 2 year Summer I+0%	102.200	101.021	-0.129	0.000	0.05
S1.001	S11.0	60 minute 2 year Summer I+0%	102.550	100.662	-0.118	0.000	0.10
S2.000	SDUMMY10.1	60 minute 2 year Summer I+0%	104.000	103.000	-0.150	0.000	0.00
S2.001	S10.1	240 minute 2 year Winter I+0%	102.200	100.565	-0.085	0.000	0.01
S1.002	S10.0	60 minute 2 year Summer I+0%	101.550	100.448	0.318	0.000	0.37
S3.000	SDUMMY9.1	60 minute 2 year Summer I+0%	103.000	101.500	-0.150	0.000	0.00
S3.001	S9.1	480 minute 2 year Winter I+0%	101.200	100.137	-0.013	0.000	0.03
S1.003	S9.0	60 minute 2 year Winter I+0%	101.200	100.422	0.412	0.000	0.20
S4.000	SDUMMY8.2	60 minute 2 year Summer I+0%	103.000	102.000	-0.150	0.000	0.00
S4.001	S8.2	360 minute 2 year Winter I+0%	101.600	100.351	0.001	0.000	0.04
S4.002	S8.1	360 minute 2 year Winter I+0%	101.600	100.146	-0.134	0.000	0.02
S1.004	S8.0	60 minute 2 year Winter I+0%	100.550	99.794	0.159	0.000	0.45
S5.000	S7.2	240 minute 2 year Winter I+0%	101.350	100.132	-0.138	0.000	0.02
S5.001	S7.1	60 minute 2 year Winter I+0%	101.300	99.948	-0.132	0.000	0.03
S1.005	S7.0	60 minute 2 year Winter I+0%	100.600	99.767	0.207	0.000	0.22
S1.006	S6.0	60 minute 2 year Winter I+0%	99.750	98.618	-0.157	0.000	0.20
S6.000	SDUMMY5.4	60 minute 2 year Summer I+0%	102.000	101.000	-0.150	0.000	0.00

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Micro Drainage	Network 2020.1.3	

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


PN	US/MH Name	Overflow (1/s)	Maximum Vol (m ³)	Half Drain Pipe		Status
				Time (mins)	Flow (1/s)	
S1.000	S12.0		0.018		1.2	OK
S1.001	S11.0		0.037		2.0	OK
S2.000	SDUMMY10.1		0.000		0.0	OK
S2.001	S10.1		2.308	112	0.3	OK
S1.002	S10.0		1.337	38	11.8	SURCHARGED
S3.000	SDUMMY9.1		0.000		0.0	OK
S3.001	S9.1		10.294	240	0.5	OK
S1.003	S9.0		2.081		12.2	SURCHARGED
S4.000	SDUMMY8.2		0.000		0.0	OK
S4.001	S8.2		9.211	258	0.5	SURCHARGED
S4.002	S8.1		0.019		0.5	OK
S1.004	S8.0		1.361		14.1	SURCHARGED
S5.000	S7.2		0.449	64	0.2	OK
S5.001	S7.1		0.388	30	0.9	OK
S1.005	S7.0		3.337	40	16.9	SURCHARGED
S1.006	S6.0		0.089		18.1	OK
S6.000	SDUMMY5.4		0.000		0.0	OK

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Micro Drainage	Network 2020.1.3	

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

PN	US/MH Name	Event	Water			Surcharged		Flooded	
			US/CL (m)	Level (m)	Depth (m)	Volume (m ³)	Flow / Cap.		
S6.001	S5.4	360 minute 2 year Winter I+0%	100.350	98.669	0.014	0.000	0.03		
S6.002	S5.3	120 minute 2 year Summer I+0%	99.500	98.755	0.235	0.000	0.06		
S6.003	S5.2	60 minute 2 year Summer I+0%	99.250	98.364	-0.111	0.000	0.15		
S6.004	S5.1	60 minute 2 year Summer I+0%	98.750	98.109	-0.166	0.000	0.16		
S1.007	S5.0	60 minute 2 year Winter I+0%	99.100	97.887	-0.238	0.000	0.10		
S7.000	SDUMMY4.2	60 minute 2 year Summer I+0%	100.000	99.000	-0.150	0.000	0.00		
S7.001	S4.2	360 minute 2 year Winter I+0%	98.550	97.348	-0.022	0.000	0.03		
S7.002	S4.1	60 minute 2 year Summer I+0%	98.100	97.007	-0.123	0.000	0.07		
S1.008	SBASIN	960 minute 2 year Winter I+0%	97.650	96.584	-0.106	0.000	0.06		
S1.009	S4.0	960 minute 2 year Winter I+0%	98.600	96.399	-0.241	0.000	0.05		
S1.010	S3.0	960 minute 2 year Winter I+0%	99.290	96.373	-0.127	0.000	0.06		
S1.011	S2.0	960 minute 2 year Winter I+0%	99.400	96.370	-0.595	0.000	0.02		
S1.012	S1.0	960 minute 2 year Winter I+0%	98.180	96.369	0.209	0.000	0.26		

PN	US/MH Name	Overflow (1/s)	Maximum Vol (m ³)	Half Drain Pipe		Status
				Time (mins)	Flow (1/s)	
S6.001	S5.4		14.179	354	0.4	SURCHARGED
S6.002	S5.3		1.097	32	0.8	SURCHARGED
S6.003	S5.2		0.055		2.1	OK
S6.004	S5.1		0.080		6.7	OK
S1.007	S5.0		0.065		27.3	OK
S7.000	SDUMMY4.2		0.000		0.0	OK
S7.001	S4.2		9.833	282	0.4	OK
S7.002	S4.1		0.042		2.1	OK
S1.008	SBASIN		82.848	528	3.3	OK
S1.009	S4.0		0.155		3.3	OK
S1.010	S3.0		1.056		3.3	OK
S1.011	S2.0		0.577		3.2	OK
S1.012	S1.0		3.130		3.3	SURCHARGED

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Micro Drainage	Network 2020.1.3	

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

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 11
Number of Online Controls 10 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0


Synthetic Rainfall Details

Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 430500 218950 SP 30500 18950
Data Type Catchment
Cv (Summer) 0.750
Cv (Winter) 0.840

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


Profile(s) Summer and Winter
Duration(s) (mins) 60, 120, 240, 360, 480, 960, 1440, 2160,
2880, 4320, 5760
Return Period(s) (years) 2, 10, 30, 100
Climate Change (%) 0, 0, 0, 40

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)
S1.000	S12.0	60 minute 10 year Summer I+0%	102.200	101.030	-0.120	0.000
S1.001	S11.0	60 minute 10 year Summer I+0%	102.550	100.673	-0.107	0.000
S2.000	SDUMMY10.1	60 minute 10 year Summer I+0%	104.000	103.000	-0.150	0.000
S2.001	S10.1	120 minute 10 year Winter I+0%	102.200	100.610	-0.040	0.000
S1.002	S10.0	60 minute 10 year Summer I+0%	101.550	100.593	0.463	0.000
S3.000	SDUMMY9.1	60 minute 10 year Summer I+0%	103.000	101.500	-0.150	0.000
S3.001	S9.1	960 minute 10 year Winter I+0%	101.200	100.217	0.067	0.000
S1.003	S9.0	60 minute 10 year Summer I+0%	101.200	100.532	0.522	0.000
S4.000	SDUMMY8.2	60 minute 10 year Summer I+0%	103.000	102.000	-0.150	0.000
S4.001	S8.2	360 minute 10 year Winter I+0%	101.600	100.443	0.093	0.000
S4.002	S8.1	360 minute 10 year Winter I+0%	101.600	100.147	-0.133	0.000
S1.004	S8.0	60 minute 10 year Summer I+0%	100.550	99.880	0.245	0.000
S5.000	S7.2	120 minute 10 year Winter I+0%	101.350	100.140	-0.130	0.000
S5.001	S7.1	60 minute 10 year Summer I+0%	101.300	99.958	-0.122	0.000
S1.005	S7.0	60 minute 10 year Summer I+0%	100.600	99.799	0.239	0.000
S1.006	S6.0	60 minute 10 year Summer I+0%	99.750	98.658	-0.117	0.000
S6.000	SDUMMY5.4	60 minute 10 year Summer I+0%	102.000	101.000	-0.150	0.000

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


PN	US/MH Name	Flow / Overflow Cap. (l/s)	Maximum Vol (m ³)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S1.000	S12.0	0.09	0.028		2.2	OK
S1.001	S11.0	0.18	0.052		3.5	OK
S2.000	SDUMMY10.1	0.00	0.000		0.0	OK
S2.001	S10.1	0.01	3.888	116	0.4	OK
S1.002	S10.0	0.69	1.844	38	22.2	SURCHARGED
S3.000	SDUMMY9.1	0.00	0.000		0.0	OK
S3.001	S9.1	0.04	16.316	352	0.6	SURCHARGED
S1.003	S9.0	0.43	2.206		25.8	SURCHARGED
S4.000	SDUMMY8.2	0.00	0.000		0.0	OK
S4.001	S8.2	0.05	14.812	312	0.6	SURCHARGED
S4.002	S8.1	0.03	0.021		0.6	OK
S1.004	S8.0	1.03	1.725		32.3	SURCHARGED
S5.000	S7.2	0.04	0.743	52	0.6	OK
S5.001	S7.1	0.08	0.613	32	2.0	OK
S1.005	S7.0	0.50	3.798	44	38.7	SURCHARGED
S1.006	S6.0	0.46	0.147		41.5	OK
S6.000	SDUMMY5.4	0.00	0.000		0.0	OK

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

PN	US/MH Name	Event	Water			Surcharged		Flooded	
			US/CL (m)	Level (m)	Depth (m)	Volume (m ³)	Flow / Cap.		
S6.001	S5.4	360 minute 10 year Winter I+0%	100.350	98.777	0.122	0.000	0.04		
S6.002	S5.3	60 minute 10 year Winter I+0%	99.500	98.956	0.436	0.000	0.07		
S6.003	S5.2	60 minute 10 year Summer I+0%	99.250	98.378	-0.097	0.000	0.26		
S6.004	S5.1	60 minute 10 year Summer I+0%	98.750	98.135	-0.140	0.000	0.30		
S1.007	S5.0	60 minute 10 year Summer I+0%	99.100	97.921	-0.204	0.000	0.22		
S7.000	SDUMMY4.2	60 minute 10 year Summer I+0%	100.000	99.000	-0.150	0.000	0.00		
S7.001	S4.2	360 minute 10 year Winter I+0%	98.550	97.423	0.053	0.000	0.04		
S7.002	S4.1	60 minute 10 year Summer I+0%	98.100	97.017	-0.113	0.000	0.14		
S1.008	SBASIN	960 minute 10 year Winter I+0%	97.650	96.697	0.007	0.000	0.06		
S1.009	S4.0	960 minute 10 year Winter I+0%	98.600	96.524	-0.116	0.000	0.05		
S1.010	S3.0	960 minute 10 year Winter I+0%	99.290	96.520	0.020	0.000	0.06		
S1.011	S2.0	960 minute 10 year Winter I+0%	99.400	96.518	-0.447	0.000	0.02		
S1.012	S1.0	960 minute 10 year Winter I+0%	98.180	96.516	0.356	0.000	0.26		

PN	US/MH Name	Overflow (1/s)	Maximum Vol (m ³)	Half Drain Pipe		Status
				Time (mins)	Flow (1/s)	
S6.001	S5.4		23.607	426	0.5	SURCHARGED
S6.002	S5.3		2.770	30	0.9	SURCHARGED
S6.003	S5.2		0.078		3.6	OK
S6.004	S5.1		0.118		12.7	OK
S1.007	S5.0		0.103		62.9	OK
S7.000	SDUMMY4.2		0.000		0.0	OK
S7.001	S4.2		15.675	348	0.5	SURCHARGED
S7.002	S4.1		0.063		4.0	OK
S1.008	SBASIN		135.153	624	3.3	SURCHARGED
S1.009	S4.0		0.691		3.3	OK
S1.010	S3.0		2.682		3.2	SURCHARGED
S1.011	S2.0		0.973		3.2	OK
S1.012	S1.0		5.270		3.3	SURCHARGED

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

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 11
Number of Online Controls 10 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0


Synthetic Rainfall Details

Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 430500 218950 SP 30500 18950
Data Type Catchment
Cv (Summer) 0.750
Cv (Winter) 0.840

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


Profile(s) Summer and Winter
Duration(s) (mins) 60, 120, 240, 360, 480, 960, 1440, 2160,
2880, 4320, 5760
Return Period(s) (years) 2, 10, 30, 100
Climate Change (%) 0, 0, 0, 40

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)
S1.000	S12.0	60 minute 30 year Summer I+0%	102.200	101.034	-0.116	0.000
S1.001	S11.0	60 minute 30 year Summer I+0%	102.550	100.738	-0.042	0.000
S2.000	SDUMMY10.1	60 minute 30 year Summer I+0%	104.000	103.000	-0.150	0.000
S2.001	S10.1	120 minute 30 year Winter I+0%	102.200	100.655	0.005	0.000
S1.002	S10.0	60 minute 30 year Summer I+0%	101.550	100.694	0.564	0.000
S3.000	SDUMMY9.1	60 minute 30 year Summer I+0%	103.000	101.500	-0.150	0.000
S3.001	S9.1	960 minute 30 year Winter I+0%	101.200	100.273	0.123	0.000
S1.003	S9.0	60 minute 30 year Summer I+0%	101.200	100.604	0.594	0.000
S4.000	SDUMMY8.2	60 minute 30 year Summer I+0%	103.000	102.000	-0.150	0.000
S4.001	S8.2	240 minute 30 year Winter I+0%	101.600	100.526	0.176	0.000
S4.002	S8.1	240 minute 30 year Winter I+0%	101.600	100.148	-0.132	0.000
S1.004	S8.0	60 minute 30 year Summer I+0%	100.550	99.943	0.308	0.000
S5.000	S7.2	60 minute 30 year Winter I+0%	101.350	100.146	-0.124	0.000
S5.001	S7.1	60 minute 30 year Summer I+0%	101.300	99.964	-0.116	0.000
S1.005	S7.0	60 minute 30 year Summer I+0%	100.600	99.813	0.253	0.000
S1.006	S6.0	60 minute 30 year Summer I+0%	99.750	98.676	-0.099	0.000
S6.000	SDUMMY5.4	60 minute 30 year Summer I+0%	102.000	101.000	-0.150	0.000

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


PN	US/MH Name	Flow / Overflow Cap. (l/s)	Maximum Vol (m ³)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S1.000	S12.0	0.12	0.033		3.0	OK
S1.001	S11.0	0.25	0.141		4.8	OK
S2.000	SDUMMY10.1	0.00	0.000		0.0	OK
S2.001	S10.1	0.02	5.459	132	0.5	SURCHARGED
S1.002	S10.0	0.87	2.957	10	27.9	SURCHARGED
S3.000	SDUMMY9.1	0.00	0.000		0.0	OK
S3.001	S9.1	0.05	20.519	384	0.6	SURCHARGED
S1.003	S9.0	0.54	2.287		32.1	SURCHARGED
S4.000	SDUMMY8.2	0.00	0.000		0.0	OK
S4.001	S8.2	0.05	19.880		0.7	SURCHARGED
S4.002	S8.1	0.03	0.023		0.7	OK
S1.004	S8.0	1.30	1.946		40.6	SURCHARGED
S5.000	S7.2	0.07	0.987	32	1.0	OK
S5.001	S7.1	0.12	0.745	32	3.0	OK
S1.005	S7.0	0.64	4.003	44	49.4	SURCHARGED
S1.006	S6.0	0.60	0.186		53.4	OK
S6.000	SDUMMY5.4	0.00	0.000		0.0	OK

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

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap.
S6.002	S5.3	60 minute 30 year Winter I+0%	99.500	99.075	0.555	0.000	0.13
S6.003	S5.2	60 minute 30 year Summer I+0%	99.250	98.386	-0.089	0.000	0.33
S6.004	S5.1	60 minute 30 year Summer I+0%	98.750	98.150	-0.125	0.000	0.40
S1.007	S5.0	60 minute 30 year Summer I+0%	99.100	97.936	-0.189	0.000	0.29
S7.000	SDUMMY4.2	60 minute 30 year Summer I+0%	100.000	99.000	-0.150	0.000	0.00
S7.001	S4.2	360 minute 30 year Winter I+0%	98.550	97.491	0.121	0.000	0.04
S7.002	S4.1	60 minute 30 year Summer I+0%	98.100	97.024	-0.106	0.000	0.19
S1.008	SBASIN	960 minute 30 year Winter I+0%	97.650	96.819	0.129	0.000	0.06
S1.009	S4.0	960 minute 30 year Winter I+0%	98.600	96.674	0.034	0.000	0.05
S1.010	S3.0	960 minute 30 year Winter I+0%	99.290	96.670	0.170	0.000	0.06
S1.011	S2.0	960 minute 30 year Winter I+0%	99.400	96.668	-0.297	0.000	0.02
S1.012	S1.0	960 minute 30 year Winter I+0%	98.180	96.667	0.507	0.000	0.26

PN	US/MH Name	Overflow (l/s)	Maximum Vol (m ³)	Half Drain Pipe		Status
				Time (mins)	Flow (l/s)	
S6.001	S5.4		31.962	516	0.6	SURCHARGED
S6.002	S5.3		4.308	40	1.6	SURCHARGED
S6.003	S5.2		0.092		4.7	OK
S6.004	S5.1		0.140		17.0	OK
S1.007	S5.0		0.125		82.3	OK
S7.000	SDUMMY4.2		0.000		0.0	OK
S7.001	S4.2		20.938	384	0.6	SURCHARGED
S7.002	S4.1		0.075		5.3	OK
S1.008	SBASIN		195.176	928	3.3	SURCHARGED
S1.009	S4.0		1.308		3.3	SURCHARGED
S1.010	S3.0		3.306		3.2	SURCHARGED
S1.011	S2.0		1.162		3.2	OK
S1.012	S1.0		7.452		3.3	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 Storage Structures 11
Number of Online Controls 10 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0


Synthetic Rainfall Details

Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 430500 218950 SP 30500 18950
Data Type Catchment
Cv (Summer) 0.750
Cv (Winter) 0.840

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


Profile(s) Summer and Winter
Duration(s) (mins) 60, 120, 240, 360, 480, 960, 1440, 2160,
2880, 4320, 5760
Return Period(s) (years) 2, 10, 30, 100
Climate Change (%) 0, 0, 0, 40

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)
S1.000	S12.0	60 minute 100 year Summer I+40%	102.200	101.109	-0.041	0.000
S1.001	S11.0	60 minute 100 year Summer I+40%	102.550	101.087	0.307	0.000
S2.000	SDUMMY10.1	60 minute 100 year Summer I+40%	104.000	103.000	-0.150	0.000
S2.001	S10.1	120 minute 100 year Winter I+40%	102.200	100.817	0.167	0.000
S1.002	S10.0	60 minute 100 year Summer I+40%	101.550	100.975	0.845	0.000
S3.000	SDUMMY9.1	60 minute 100 year Summer I+40%	103.000	101.500	-0.150	0.000
S3.001	S9.1	2160 minute 100 year Winter I+40%	101.200	100.409	0.259	0.000
S1.003	S9.0	60 minute 100 year Summer I+40%	101.200	100.808	0.798	0.000
S4.000	SDUMMY8.2	60 minute 100 year Summer I+40%	103.000	102.000	-0.150	0.000
S4.001	S8.2	360 minute 100 year Winter I+40%	101.600	100.845	0.495	0.000
S4.002	S8.1	360 minute 100 year Winter I+40%	101.600	100.150	-0.130	0.000
S1.004	S8.0	60 minute 100 year Summer I+40%	100.550	100.130	0.495	0.000
S5.000	S7.2	60 minute 100 year Winter I+40%	101.350	100.161	-0.109	0.000
S5.001	S7.1	60 minute 100 year Summer I+40%	101.300	99.980	-0.100	0.000
S1.005	S7.0	60 minute 100 year Summer I+40%	100.600	99.842	0.282	0.000
S1.006	S6.0	60 minute 100 year Summer I+40%	99.750	98.723	-0.052	0.000
S6.000	SDUMMY5.4	60 minute 100 year Summer I+40%	102.000	101.000	-0.150	0.000

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


PN	US/MH Name	Flow / Overflow Cap.	Maximum (l/s)	Maximum Vol (m ³)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S1.000	S12.0	0.23		0.118		5.8	OK
S1.001	S11.0	0.42		0.758		8.2	SURCHARGED
S2.000	SDUMMY10.1	0.00		0.000		0.0	OK
S2.001	S10.1	0.02		11.198	176	0.7	SURCHARGED
S1.002	S10.0	1.30		10.612	10	41.7	SURCHARGED
S3.000	SDUMMY9.1	0.00		0.000		0.0	OK
S3.001	S9.1	0.05		30.774	576	0.7	SURCHARGED
S1.003	S9.0	0.79		2.518		46.9	SURCHARGED
S4.000	SDUMMY8.2	0.00		0.000		0.0	OK
S4.001	S8.2	0.07		39.380	444	0.9	SURCHARGED
S4.002	S8.1	0.04		0.027		0.9	OK
S1.004	S8.0	1.90		2.414		59.5	SURCHARGED
S5.000	S7.2	0.17		1.562	28	2.4	OK
S5.001	S7.1	0.24		1.088	30	6.1	OK
S1.005	S7.0	0.99		4.468	46	76.7	SURCHARGED
S1.006	S6.0	0.94		0.290		84.0	OK
S6.000	SDUMMY5.4	0.00		0.000		0.0	OK

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

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)
S6.001	S5.4	480 minute 100 year Winter I+40%	100.350	99.202	0.547	0.000
S6.002	S5.3	60 minute 100 year Summer I+40%	99.500	99.180	0.660	0.000
S6.003	S5.2	60 minute 100 year Summer I+40%	99.250	98.457	-0.018	0.000
S6.004	S5.1	60 minute 100 year Summer I+40%	98.750	98.202	-0.073	0.000
S1.007	S5.0	60 minute 100 year Summer I+40%	99.100	97.975	-0.150	0.000
S7.000	SDUMMY4.2	60 minute 100 year Summer I+40%	100.000	99.000	-0.150	0.000
S7.001	S4.2	360 minute 100 year Winter I+40%	98.550	97.755	0.385	0.000
S7.002	S4.1	1440 minute 100 year Winter I+40%	98.100	97.241	0.111	0.000
S1.008	SBASIN	1440 minute 100 year Winter I+40%	97.650	97.238	0.548	0.000
S1.009	S4.0	1440 minute 100 year Winter I+40%	98.600	97.076	0.436	0.000
S1.010	S3.0	1440 minute 100 year Winter I+40%	99.290	97.072	0.572	0.000
S1.011	S2.0	1440 minute 100 year Winter I+40%	99.400	97.070	0.105	0.000
S1.012	S1.0	1440 minute 100 year Winter I+40%	98.180	97.068	0.908	0.000

PN	US/MH Name	Flow / Overflow Cap.	Maximum (l/s)	Vol (m ³)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S6.001	S5.4	0.05		60.444	816	0.7	SURCHARGED
S6.002	S5.3	0.75		5.903	46	9.2	SURCHARGED
S6.003	S5.2	0.99		0.207		14.0	OK
S6.004	S5.1	0.75		0.297		32.0	OK
S1.007	S5.0	0.49		0.196		139.3	OK
S7.000	SDUMMY4.2	0.00		0.000		0.0	OK
S7.001	S4.2	0.06		41.322	498	0.8	SURCHARGED
S7.002	S4.1	0.04		0.737		1.3	SURCHARGED
S1.008	SBASIN	0.06		427.752	1944	3.3	SURCHARGED
S1.009	S4.0	0.05		1.802		3.3	SURCHARGED
S1.010	S3.0	0.06		3.768		3.2	SURCHARGED
S1.011	S2.0	0.02		1.616		3.2	SURCHARGED
S1.012	S1.0	0.26		10.022		3.3	SURCHARGED


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Summary of Results for 1440 minute 100 year Winter (Storm)

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

PN	US/MH Name	US/CL (m)	Water			Flow / Cap.	Overflow (l/s)	Maximum Vol (m ³)	Half Drain Time (mins)	Pipe Flow (l/s)
			Level (m)	Depth (m)	Volume (m ³)					
S1.008	SBASIN	97.650	97.272	0.582	0.000	0.06		448.390	1608	3.3
S1.009	S4.0	98.600	97.098	0.458	0.000	0.05		1.827		3.3
S1.010	S3.0	99.290	97.093	0.593	0.000	0.06		3.793		3.2
S1.011	S2.0	99.400	97.091	0.126	0.000	0.02		1.640		3.2
S1.012	S1.0	98.180	97.090	0.930	0.000	0.26		10.046		3.3

PN	US/MH Name	Status
S1.008	SBASIN	SURCHARGED
S1.009	S4.0	SURCHARGED
S1.010	S3.0	SURCHARGED
S1.011	S2.0	SURCHARGED
S1.012	S1.0	SURCHARGED

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Rainfall Hyetograph for 1440 minute 100 year Winter (Storm)


Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
24	0.264	312	1.841	600	7.107	888	6.450	1176	1.732
48	0.758	336	1.990	624	7.667	912	5.861	1200	1.678
72	1.121	360	2.187	648	8.188	936	5.281	1224	1.652
96	1.389	384	2.477	672	8.700	960	4.654	1248	1.649
120	1.531	408	2.797	696	9.064	984	4.133	1272	1.652
144	1.612	432	3.168	720	9.325	1008	3.651	1296	1.648
168	1.648	456	3.651	744	9.325	1032	3.168	1320	1.612
192	1.652	480	4.133	768	9.064	1056	2.797	1344	1.531
216	1.649	504	4.654	792	8.700	1080	2.477	1368	1.389
240	1.652	528	5.281	816	8.188	1104	2.187	1392	1.121
264	1.678	552	5.861	840	7.667	1128	1.990	1416	0.758
288	1.732	576	6.450	864	7.107	1152	1.841	1440	0.264

Input Hydrograph Manhole SBASIN, DS/PN S1.008 (Storm)

1440 minute 100 year Winter

Input Hydrograph Type: User Defined

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
16	0.0	480	0.0	944	0.0	1408	0.0	1872	0.0	2336	0.0
32	0.0	496	0.0	960	0.0	1424	0.0	1888	0.0	2352	0.0
48	0.0	512	0.0	976	0.0	1440	0.0	1904	0.0	2368	0.0
64	0.0	528	0.0	992	0.0	1456	0.0	1920	0.0	2384	0.0
80	0.0	544	0.0	1008	0.0	1472	0.0	1936	0.0	2400	0.0
96	0.0	560	0.0	1024	0.0	1488	0.0	1952	0.0	2416	0.0
112	0.0	576	0.0	1040	0.0	1504	0.0	1968	0.0	2432	0.0
128	0.0	592	0.0	1056	0.0	1520	0.0	1984	0.0	2448	0.0
144	0.0	608	0.0	1072	0.0	1536	0.0	2000	0.0	2464	0.0
160	0.0	624	0.0	1088	0.0	1552	0.0	2016	0.0	2480	0.0
176	0.0	640	0.0	1104	0.0	1568	0.0	2032	0.0	2496	0.0
192	0.0	656	0.0	1120	0.0	1584	0.0	2048	0.0	2512	0.0
208	0.0	672	0.0	1136	0.0	1600	0.0	2064	0.0	2528	0.0
224	0.0	688	0.0	1152	0.0	1616	0.0	2080	0.0	2544	0.0
240	0.0	704	0.0	1168	0.0	1632	0.0	2096	0.0	2560	0.0
256	0.0	720	0.0	1184	0.0	1648	0.0	2112	0.0	2576	0.0
272	0.0	736	0.0	1200	0.0	1664	0.0	2128	0.0	2592	0.0
288	0.0	752	0.0	1216	0.0	1680	0.0	2144	0.0	2608	0.0
304	0.0	768	0.0	1232	0.0	1696	0.0	2160	0.0	2624	0.0
320	0.0	784	0.0	1248	0.0	1712	0.0	2176	0.0	2640	0.0
336	0.0	800	0.0	1264	0.0	1728	0.0	2192	0.0	2656	0.0
352	0.0	816	0.0	1280	0.0	1744	0.0	2208	0.0	2672	0.0
368	0.0	832	0.0	1296	0.0	1760	0.0	2224	0.0	2688	0.0
384	0.0	848	0.0	1312	0.0	1776	0.0	2240	0.0	2704	0.0
400	0.0	864	0.0	1328	0.0	1792	0.0	2256	0.0	2720	0.0
416	0.0	880	0.0	1344	0.0	1808	0.0	2272	0.0	2736	0.0
432	0.0	896	0.0	1360	0.0	1824	0.0	2288	0.0	2752	0.0
448	0.0	912	0.0	1376	0.0	1840	0.0	2304	0.0	2768	0.0
464	0.0	928	0.0	1392	0.0	1856	0.0	2320	0.0	2784	0.0

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Input Hydrograph Manhole SBASIN, DS/PN S1.008 (Storm)
1440 minute 100 year Winter
Input Hydrograph Type: User Defined

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
2800	0.0	3136	2.2	3472	7.1	3808	2.8	4144	0.8	4480	0.2
2816	0.0	3152	2.3	3488	6.4	3824	2.8	4160	0.8	4496	0.2
2832	0.0	3168	2.5	3504	5.8	3840	2.7	4176	0.7	4512	0.2
2848	0.0	3184	2.7	3520	5.3	3856	2.1	4192	0.7	4528	0.2
2864	0.0	3200	3.0	3536	5.0	3872	1.7	4208	0.6	4544	0.2
2880	0.0	3216	3.3	3552	4.9	3888	1.7	4224	0.6	4560	0.1
2896	0.4	3232	3.8	3568	4.8	3904	1.6	4240	0.6	4576	0.1
2912	0.6	3248	4.4	3584	4.5	3920	1.6	4256	0.5	4592	0.1
2928	0.6	3264	5.1	3600	4.4	3936	1.5	4272	0.5	4608	0.1
2944	0.8	3280	5.7	3616	4.2	3952	1.5	4288	0.5	4624	0.1
2960	1.0	3296	6.2	3632	3.7	3968	1.4	4304	0.4	4640	0.1
2976	1.0	3312	6.9	3648	3.6	3984	1.4	4320	0.4	4656	0.1
2992	1.1	3328	7.7	3664	3.4	4000	1.3	4336	0.4	4672	0.1
3008	1.2	3344	8.5	3680	3.4	4016	1.3	4352	0.4	4688	0.1
3024	1.3	3360	9.8	3696	3.3	4032	1.2	4368	0.3	4704	0.1
3040	1.4	3376	11.6	3712	3.2	4048	1.2	4384	0.3	4720	0.1
3056	1.5	3392	11.2	3728	3.1	4064	1.1	4400	0.3	4736	0.1
3072	1.6	3408	9.9	3744	3.1	4080	1.0	4416	0.3	4752	0.1
3088	1.8	3424	9.0	3760	3.0	4096	1.0	4432	0.3	4768	0.1
3104	1.9	3440	8.4	3776	3.0	4112	0.9	4448	0.3	4784	0.1
3120	2.0	3456	7.7	3792	2.9	4128	0.9	4464	0.2	4800	0.1

Cornerstone Court
62 Foxhall Road
Didcot OX11 7AD

Land West of London Lane
Ascott-under-Wychwood
OPTION 4 - CONS STORMS



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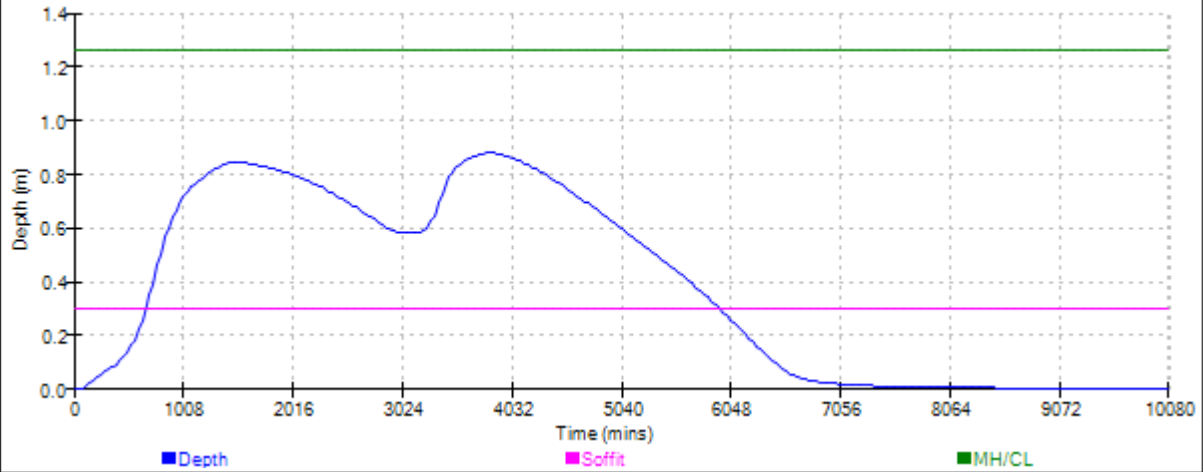
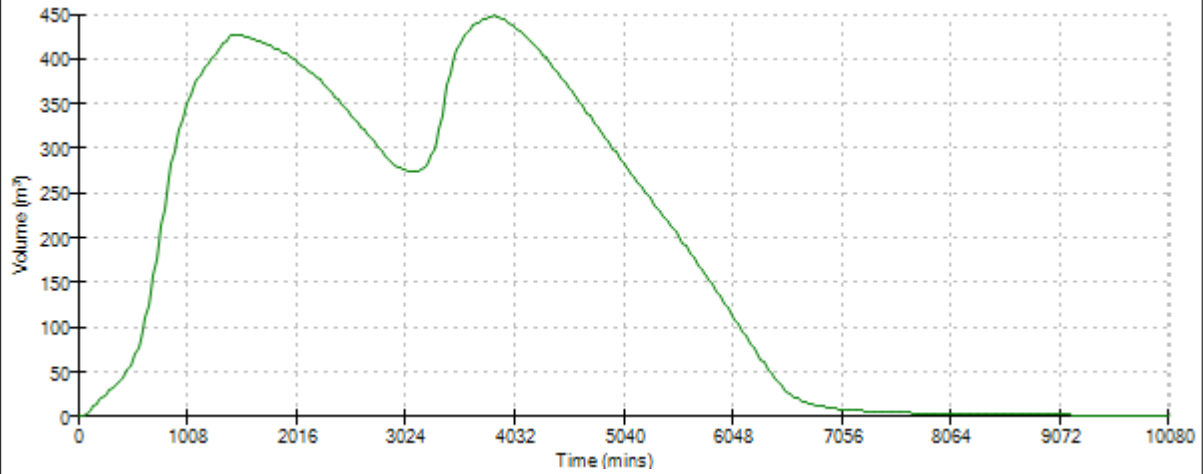
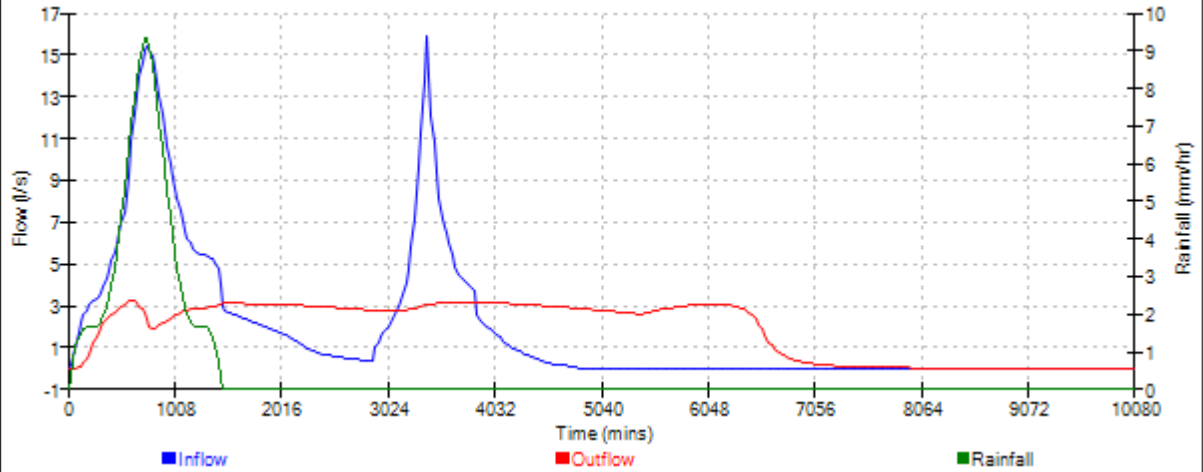
File 8211067 - OPTION 4 - OU...

Checked by C Salt

Micro Drainage

Network 2020.1.3

Graphs for Pipe S1.008 US/MH SBASIN (Storm)
1440 minute 100 year Winter
Status: SURCHARGED



Cornerstone Court
62 Foxhall Road
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Land West of London Lane
Ascott-under-Wychwood
OPTION 4 - CONS STORMS



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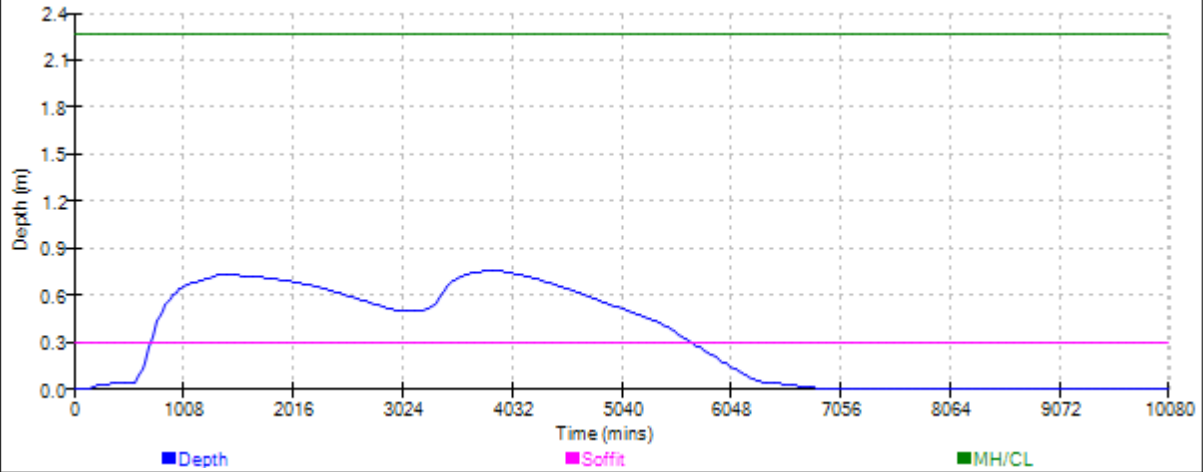
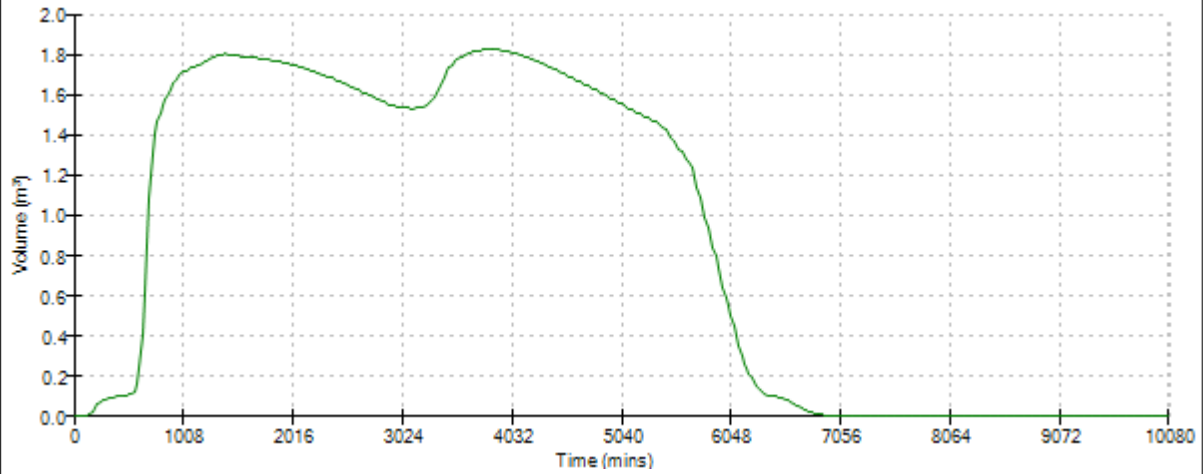
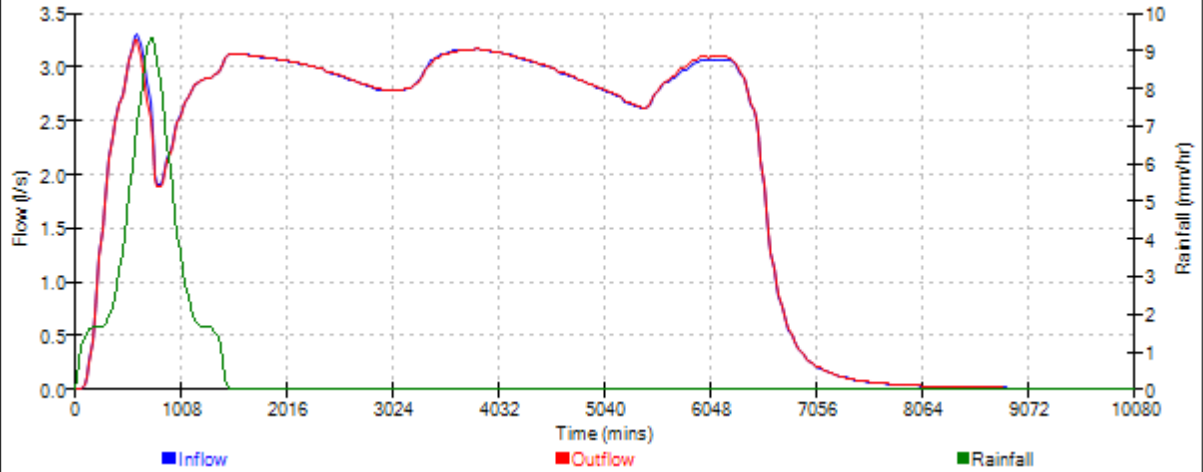
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Micro Drainage

Network 2020.1.3

Graphs for Pipe S1.009 US/MH S4.0 (Storm)
1440 minute 100 year Winter
Status: SURCHARGED



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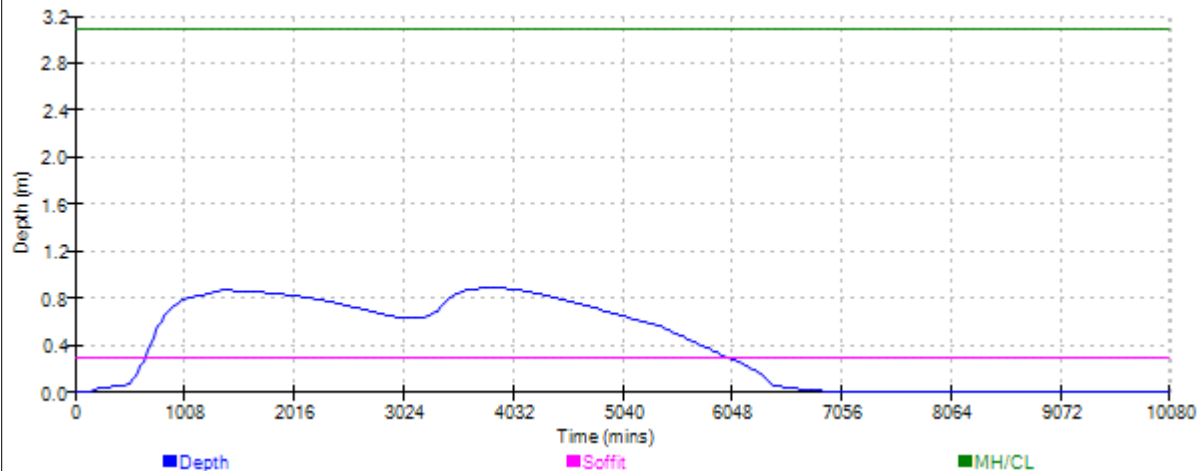
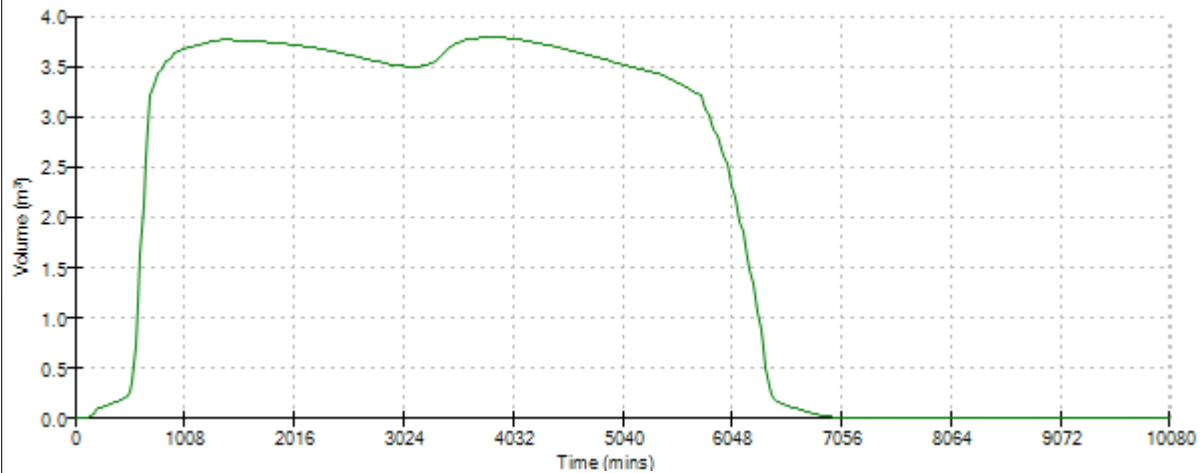
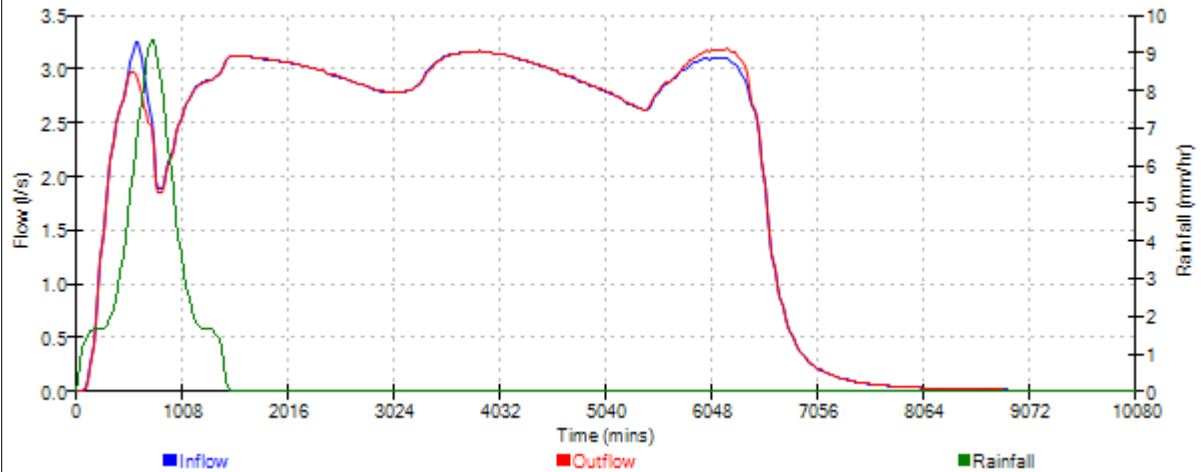
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Micro Drainage

Network 2020.1.3

Graphs for Pipe S1.010 US/MH S3.0 (Storm)
1440 minute 100 year Winter
Status: SURCHARGED



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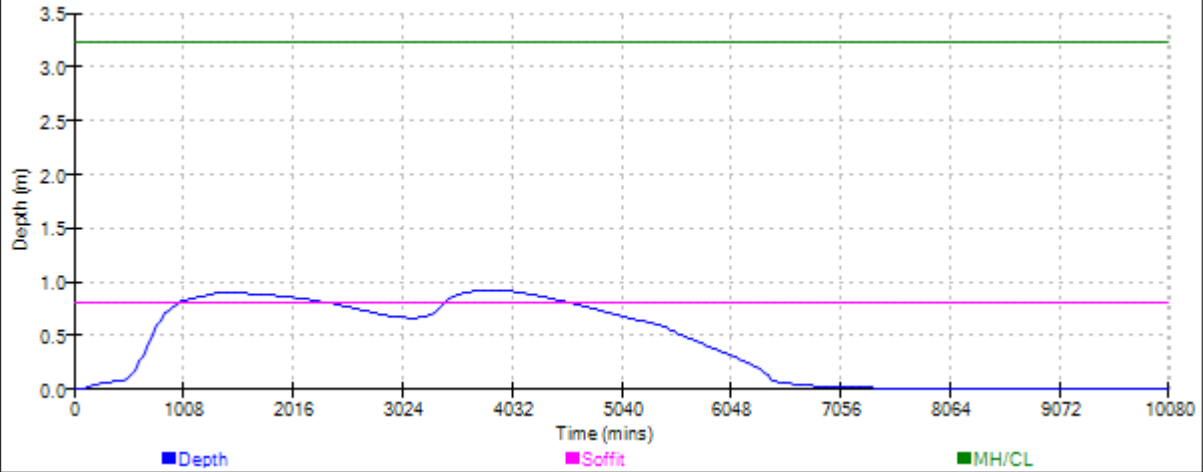
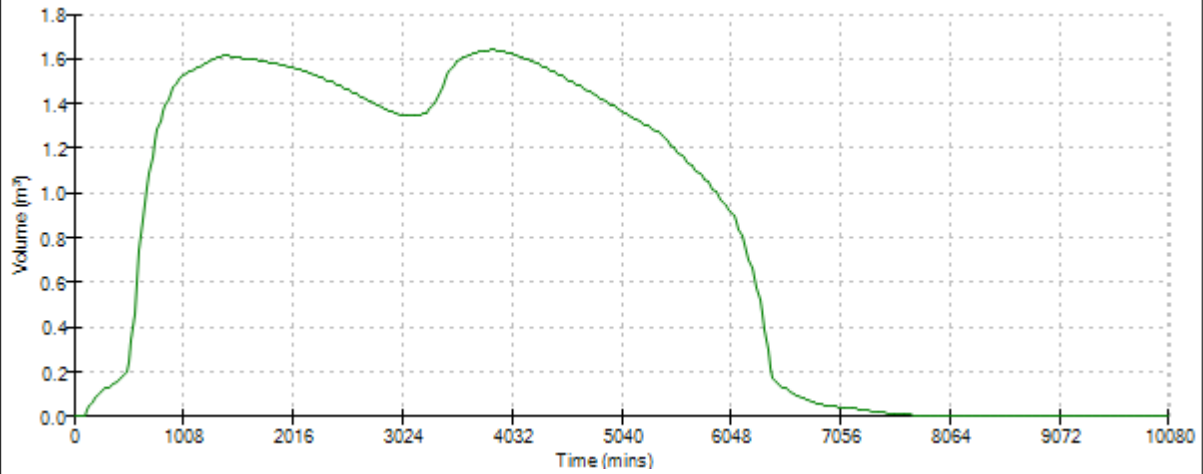
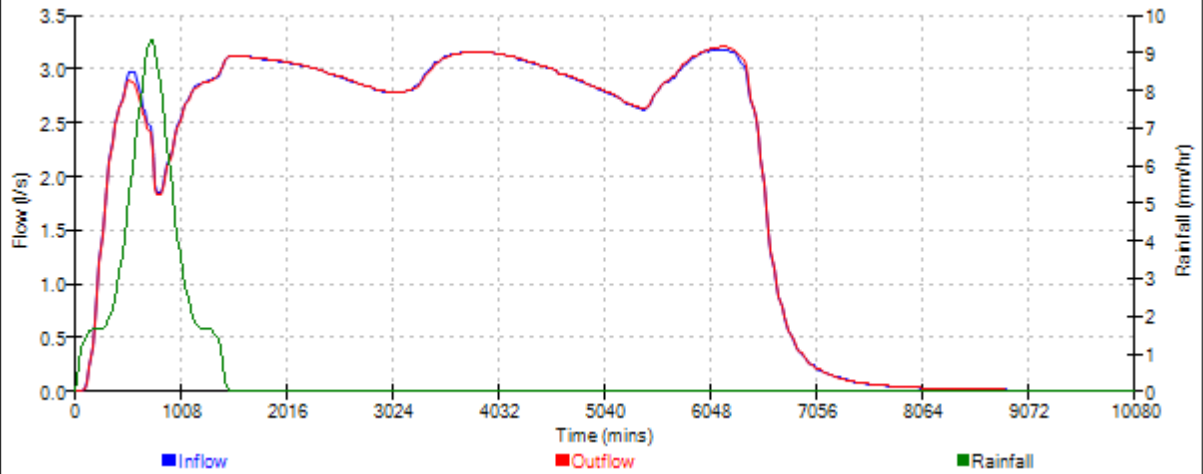
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Micro Drainage

Network 2020.1.3

Graphs for Pipe S1.011 US/MH S2.0 (Storm)
1440 minute 100 year Winter
Status: SURCHARGED



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Micro Drainage

Network 2020.1.3

Graphs for Pipe S1.012 US/MH S1.0 (Storm)
1440 minute 100 year Winter
Status: SURCHARGED

