

5 Appendices

Appendix A.1 – Royal Military Canal – Tide Lock Analysis

Appendix A.2 – Catchment Area Drawing

Appendix A.3 – Topographical Sections

Appendix A.4 – Greenfield Runoff Calculations

Appendix A.5 – Surface Water Runoff Calculations & Drawings

Appendix A.6 – Indicative Drainage Layout

Appendix A.4 – Greenfield Runoff Calculations

Calculated by: Bradley Whittaker
 Site name: Princes Parade
 Site location: Hythe

Site coordinates
 Latitude: 51.07092° N
 Longitude: 1.11443° E

This is an estimation of the greenfield runoff rate limits that are needed to meet normal best practice criteria in line with Environment Agency guidance "Preliminary rainfall runoff management for developments", W5-074/A/TR1/1 rev. E (2012) and the SuDS Manual, C753 (Ciria, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Reference: 6422713
 Date: 2018-08-30T16:11:51

Methodology	FEH Statistical
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Site characteristics

Total site area (ha)	2.6359
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Methodology

Qmed estimation method	Calculate from BFI and SAAR
BFI and SPR estimation method	Specify BFI manually
HOST class	N/A
BFI / BFIHOST	0.889
Qmed (l/s)	NaN
Qbar / Qmed Conversion Factor	1.14

Hydrological characteristics


	Default	Edited
SAAR (mm)	700	700
Hydrological region	7	7
Growth curve factor: 1 year	0.85	0.85
Growth curve factor: 30 year	2.3	2.3
Growth curve factor: 100 year	3.19	3.19

Notes:

(1) Is $Q_{BAR} < 2.0$ l/s/ha? Normally limiting discharge rates which are less than 2.0 l/s/ha are set at 2.0 l/s/ha.
(2) Are flow rates < 5.0 l/s? Where flow rates are less than 5.0 l/s consents are usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set in which case blockage work must be addressed by using appropriate drainage elements
(3) Is $SPR/SPRHOST \leq 0.3$?

Greenfield runoff rates

	Default	Edited
Qbar (l/s)	NaN	1.67
1 in 1 year (l/s)	NaN	1.42
1 in 30 years (l/s)	NaN	3.83
1 in 100 years (l/s)	NaN	5.31

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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ		
Date 21/09/2018 12:35 File 1494_SH GREENFIELD VOL ...	Designed by Stephen Hayward Checked by	
Micro Drainage		Source Control 2017.1.2


Greenfield Runoff Volume

FEH Data

Return Period (years)	100
Storm Duration (mins)	360
FEH Rainfall Version	2013
Site Location	GB 618329 134790
Data Type	Point
Areal Reduction Factor	0.99
Area (ha)	2.636
SAAR (mm)	716
CWI	107.065
SPR Host	12.880
URBEXT (1990)	0.0000

Results

Percentage Runoff (%)	13.43
Greenfield Runoff Volume (m ³)	250.535

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Micro Drainage	Source Control 2017.1.2	


Greenfield Runoff Volume

FEH Data

Return Period (years)	30
Storm Duration (mins)	360
FEH Rainfall Version	2013
Site Location	GB 618329 134790
Data Type	Point
Areal Reduction Factor	0.99
Area (ha)	2.636
SAAR (mm)	716
CWI	107.065
SPR Host	12.880
URBEXT (1990)	0.0000

Results

Percentage Runoff (%)	11.35
Greenfield Runoff Volume (m ³)	161.851

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Greenfield Runoff Volume

FEH Data

Return Period (years)	2
Storm Duration (mins)	360
FEH Rainfall Version	2013
Site Location	GB 618329 134790
Data Type	Point
Areal Reduction Factor	0.99
Area (ha)	2.636
SAAR (mm)	716
CWI	107.065
SPR Host	12.880
URBEXT (1990)	0.0000

Results

Percentage Runoff (%)	8.40
Greenfield Runoff Volume (m ³)	62.999

Drainage Design Report

Flow+

v7.0

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Network	Storm Network
Filename	S:\LIVE Project Files\1494 - Princes Parade, Hythe - MEET\SS Data\1 Pre VS post analysis 14_09_2018\Existing Discharge Rates Causeway\1494 - Existing Impermeable Areas.pfd
Username	Stephen Hayward (stephen@herringtonconsulting.co.uk)
Last analysed	13/09/2018 10:54:15
Report produced on	21/09/2018 11:51:36

Causeway Sales

Tel:	+44(0) 1628 552000
Fax:	+44(0) 1628 552001
Email:	marketing@causeway.com
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Name	Area (ha)	T of E (mins)	Add Inflow (l/s)	Cover Level (m)	Node Type	Manhole Type	Diameter (mm)	Width (mm)	Eastings (m)	Northing (m)	Depth (m)	Notes
E.Impermeable	0.106	4.00		10.000	Manhole	Adoptable	1900		110.000	100.000	2.200	Locked
E.Outlet				9.500	Junction				120.000	100.000	2.200	Locked
E.Discharge				9.000	Junction				130.000	100.000	2.200	Locked
P.Impermeable	1.310	4.00		10.000	Manhole	Adoptable	1900		110.000	80.000	1.650	
P.Outlet				9.500	Junction				120.000	80.000	2.200	
P.Discharge				9.000	Junction				130.000	80.000	2.200	

Link Name	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)	US Node Name	Dia (mm)	Width (mm)	Node Type	MH Type	DS Node Name	Dia (mm)	Width (mm)	Node Type	MH Type
E.Drain2	10.000	20.0	1000	Circular	10.000	7.800	1.200	9.500	7.300	1.200	E.Impermeable	1900		Manhole	Adoptable	E.Outlet			Junction	
E.Outfall	10.000	20.0	1000	Ditch	9.500	7.300	1.200	9.000	6.800	1.200	E.Outlet			Junction		E.Discharge			Junction	
P.Drain2	10.000	9.5	1000	Circular	10.000	8.350	0.650	9.500	7.300	1.200	P.Impermeable	1900		Manhole	Adoptable	P.Outlet			Junction	
P.Outfall	10.000	20.0	1000	Ditch	9.500	7.300	1.200	9.000	6.800	1.200	P.Outlet			Junction		P.Discharge			Junction	

Node Name	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Width (mm)	Node Type	MH Type	Link ID	IL (m)	Dia (mm)	Link Type	
E.Impermeable	110.000	100.000	10.000	2.200	1900		Manhole	Adoptable					
									0	E.Drain2	7.800	1000	Circular
E.Outlet	120.000	100.000	9.500	2.200			Junction		1	E.Drain2	7.300	1000	Circular
									0	E.Outfall	7.300	1000	Ditch
E.Discharge	130.000	100.000	9.000	2.200			Junction		1	E.Outfall	6.800	1000	Ditch
P.Impermeable	110.000	80.000	10.000	1.650	1900		Manhole	Adoptable					
									0	P.Drain2	8.350	1000	Circular
P.Outlet	120.000	80.000	9.500	2.200			Junction		1	P.Drain2	7.300	1000	Circular
									0	P.Outfall	7.300	1000	Ditch
P.Discharge	130.000	80.000	9.000	2.200			Junction		1	P.Outfall	6.800	1000	Ditch

Depth/Area/Inf Area									
Node	Base Inf Coefficient (m/hr)	Side Inf Coefficient (m/hr)	Safety Factor	Porosity	Invert Level (m)	Time to half empty (mins)	Depth (m)	Area (m ²)	Inf. Area (m ²)
1	0.01000	0.01000	2.0	1.00	0.000		0.000	1.0	0.0
							0.500	1.0	0.0
							1.000	10.0	0.0
2	0.01000	0.01000	2.0	1.00	0.000		0.000	1.0	0.0
							0.500	1.0	0.0
							1.000	10.0	0.0

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.87%

Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	E.Impermeable	10	7.831	0.031	11.6	0.1196	0.0000	OK	E.Drain2	E.Outlet	11.6	2.804	0.002	0.0452	
15 minute summer	E.Outlet	10	7.314	0.014	11.6	0.0000	0.0000	OK	E.Outfall	E.Discharge	11.6	1.659	0.001	0.0699	4.5
15 minute summer	E.Discharge	10	6.814	0.014	11.6	0.0000	0.0000	OK							
15 minute summer	P.Impermeable	10	8.432	0.082	143.0	1.5352	0.0000	OK	P.Drain2	P.Outlet	143.2	5.631	0.013	0.2550	
15 minute summer	P.Outlet	10	7.364	0.064	143.2	0.0000	0.0000	OK	P.Outfall	P.Discharge	143.2	4.189	0.012	0.3419	55.7
15 minute summer	P.Discharge	10	6.864	0.064	143.2	0.0000	0.0000	OK							

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.87%

Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	E.Impermeable	10	7.849	0.049	31.5	0.1857	0.0000	OK	E.Drain2	E.Outlet	31.5	3.489	0.004	0.0944	
15 minute summer	E.Outlet	10	7.325	0.025	31.5	0.0000	0.0000	OK	E.Outfall	E.Discharge	31.5	2.426	0.003	0.1299	12.3
15 minute summer	E.Discharge	10	6.825	0.025	31.5	0.0000	0.0000	OK							
15 minute summer	P.Impermeable	10	8.487	0.137	388.7	2.5708	0.0000	OK	P.Drain2	P.Outlet	389.1	6.665	0.036	0.5862	
15 minute summer	P.Outlet	9	7.420	0.120	389.1	0.0000	0.0000	OK	P.Outfall	P.Discharge	389.2	5.833	0.033	0.6673	151.4
15 minute summer	P.Discharge	10	6.919	0.119	389.2	0.0000	0.0000	OK							

Results for 30 year +20% Critical Storm Duration. Lowest mass balance: 99.87%

Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	E.Impermeable	10	7.853	0.053	37.8	0.2019	0.0000	OK	E.Drain2	E.Outlet	37.8	3.635	0.005	0.1088	
15 minute summer	E.Outlet	10	7.328	0.028	37.8	0.0000	0.0000	OK	E.Outfall	E.Discharge	37.8	2.597	0.003	0.1456	14.7
15 minute summer	E.Discharge	10	6.828	0.028	37.8	0.0000	0.0000	OK							
15 minute summer	P.Impermeable	10	8.502	0.152	466.5	2.8412	0.0000	OK	P.Drain2	P.Outlet	466.9	6.844	0.044	0.6844	
15 minute summer	P.Outlet	9	7.434	0.134	466.9	0.0000	0.0000	OK	P.Outfall	P.Discharge	467.1	6.170	0.040	0.7572	181.7
15 minute summer	P.Discharge	10	6.933	0.133	467.1	0.0000	0.0000	OK							


Results for 100 year Critical Storm Duration. Lowest mass balance: 99.87%

Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	E.Impermeable	10	7.855	0.055	40.3	0.2082	0.0000	OK	E.Drain2	E.Outlet	40.4	3.688	0.005	0.1145	
15 minute summer	E.Outlet	10	7.330	0.030	40.4	0.0000	0.0000	OK	E.Outfall	E.Discharge	40.4	2.663	0.003	0.1518	15.7
15 minute summer	E.Discharge	10	6.829	0.029	40.4	0.0000	0.0000	OK							
15 minute summer	P.Impermeable	10	8.507	0.157	498.2	2.9472	0.0000	OK	P.Drain2	P.Outlet	498.7	6.913	0.047	0.7249	
15 minute summer	P.Outlet	9	7.440	0.140	498.7	0.0000	0.0000	OK	P.Outfall	P.Discharge	498.9	6.298	0.043	0.7923	194.0
15 minute summer	P.Discharge	10	6.939	0.139	498.9	0.0000	0.0000	OK							

Results for 100 year +20% Critical Storm Duration. Lowest mass balance: 99.87%

Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	E.Impermeable	9	7.860	0.060	48.3	0.2264	0.0000	OK	E.Drain2	E.Outlet	48.4	3.807	0.007	0.1313	
15 minute summer	E.Outlet	10	7.333	0.033	48.4	0.0000	0.0000	OK	E.Outfall	E.Discharge	48.4	2.847	0.004	0.1701	18.8
15 minute summer	E.Discharge	10	6.833	0.033	48.4	0.0000	0.0000	OK							
15 minute summer	P.Impermeable	9	8.525	0.175	597.9	3.2677	0.0000	OK	P.Drain2	P.Outlet	598.5	7.094	0.056	0.8473	
15 minute summer	P.Outlet	9	7.457	0.157	598.5	0.0000	0.0000	OK	P.Outfall	P.Discharge	598.7	6.653	0.051	0.9001	232.8
15 minute summer	P.Discharge	10	6.956	0.156	598.7	0.0000	0.0000	OK							

Appendix A.5 – Surface Water Runoff Calculations

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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Leisure Center	
Date 23/11/2018 File DRAINAGE AREA A, LEASUR...	Designed by SAH Checked by	
Micro Drainage		Source Control 2017.1.2

Summary of Results for 100 year Return Period (+20%)

Half Drain Time : 6003 minutes.


Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Overflow (l/s)	Max Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	9.149	0.149	0.0	0.7	0.0	0.7	200.2	O K
30 min Summer	9.203	0.203	0.0	0.8	0.0	0.8	273.6	O K
60 min Summer	9.261	0.261	0.0	0.9	0.0	0.9	351.7	O K
120 min Summer	9.324	0.324	0.0	1.0	0.0	1.0	436.7	O K
180 min Summer	9.367	0.367	0.0	1.1	0.0	1.1	493.9	O K
240 min Summer	9.400	0.400	0.0	1.2	0.0	1.2	538.8	O K
360 min Summer	9.453	0.453	0.0	1.2	0.0	1.2	610.4	O K
480 min Summer	9.496	0.496	0.0	1.3	0.0	1.3	668.5	O K
600 min Summer	9.532	0.532	0.0	1.4	0.0	1.4	716.1	O K
720 min Summer	9.561	0.561	0.0	1.4	0.0	1.4	755.8	O K
960 min Summer	9.607	0.607	0.0	1.4	0.0	1.4	816.8	O K
1440 min Summer	9.661	0.661	0.0	1.5	0.0	1.5	890.4	O K
2160 min Summer	9.696	0.696	0.0	1.6	0.0	1.6	937.6	O K
2880 min Summer	9.708	0.708	0.0	1.6	0.0	1.6	953.1	O K
4320 min Summer	9.700	0.700	0.0	1.6	0.0	1.6	942.8	O K
5760 min Summer	9.689	0.689	0.0	1.5	0.0	1.5	927.5	O K
7200 min Summer	9.679	0.679	0.0	1.5	0.0	1.5	914.0	O K
8640 min Summer	9.670	0.670	0.0	1.5	0.0	1.5	902.0	O K
10080 min Summer	9.662	0.662	0.0	1.5	0.0	1.5	891.2	O K
15 min Winter	9.149	0.149	0.0	0.7	0.0	0.7	200.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Overflow Volume (m³)	Time-Peak (mins)
15 min Summer	118.731	0.0	54.2	0.0	19
30 min Summer	79.046	0.0	65.0	0.0	34
60 min Summer	50.083	0.0	140.7	0.0	64
120 min Summer	30.883	0.0	159.1	0.0	124
180 min Summer	23.263	0.0	170.0	0.0	184
240 min Summer	19.052	0.0	177.6	0.0	244
360 min Summer	14.441	0.0	188.3	0.0	364
480 min Summer	11.921	0.0	195.6	0.0	484
600 min Summer	10.272	0.0	200.6	0.0	604
720 min Summer	9.088	0.0	203.8	0.0	724
960 min Summer	7.457	0.0	206.5	0.0	962
1440 min Summer	5.562	0.0	203.0	0.0	1442
2160 min Summer	4.067	0.0	425.1	0.0	2160
2880 min Summer	3.231	0.0	414.5	0.0	2880
4320 min Summer	2.313	0.0	377.7	0.0	4020
5760 min Summer	1.823	0.0	780.0	0.0	4672
7200 min Summer	1.519	0.0	753.6	0.0	5400
8640 min Summer	1.311	0.0	720.4	0.0	6144
10080 min Summer	1.160	0.0	681.6	0.0	6968
15 min Winter	118.731	0.0	54.2	0.0	19

Summary of Results for 100 year Return Period (+20%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Overflow (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	9.203	0.203	0.0	0.8	0.0	0.8	273.6	O K
60 min Winter	9.261	0.261	0.0	0.9	0.0	0.9	351.7	O K
120 min Winter	9.324	0.324	0.0	1.0	0.0	1.0	436.6	O K
180 min Winter	9.367	0.367	0.0	1.1	0.0	1.1	493.9	O K
240 min Winter	9.400	0.400	0.0	1.2	0.0	1.2	538.9	O K
360 min Winter	9.453	0.453	0.0	1.2	0.0	1.2	610.4	O K
480 min Winter	9.496	0.496	0.0	1.3	0.0	1.3	668.6	O K
600 min Winter	9.532	0.532	0.0	1.4	0.0	1.4	716.3	O K
720 min Winter	9.561	0.561	0.0	1.4	0.0	1.4	756.1	O K
960 min Winter	9.607	0.607	0.0	1.4	0.0	1.4	817.2	O K
1440 min Winter	9.662	0.662	0.0	1.5	0.0	1.5	891.3	O K
2160 min Winter	9.698	0.698	0.0	1.6	0.0	1.6	939.7	O K
2880 min Winter	9.711	0.711	0.0	1.6	0.0	1.6	956.8	O K
4320 min Winter	9.706	0.706	0.0	1.6	0.0	1.6	950.2	O K
5760 min Winter	9.688	0.688	0.0	1.5	0.0	1.5	926.9	O K
7200 min Winter	9.676	0.676	0.0	1.5	0.0	1.5	910.7	O K
8640 min Winter	9.664	0.664	0.0	1.5	0.0	1.5	894.4	O K
10080 min Winter	9.652	0.652	0.0	1.5	0.0	1.5	878.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Overflow Volume (m³)	Time-Peak (mins)
30 min Winter	79.046	0.0	65.0	0.0	34
60 min Winter	50.083	0.0	140.7	0.0	64
120 min Winter	30.883	0.0	159.2	0.0	124
180 min Winter	23.263	0.0	170.0	0.0	182
240 min Winter	19.052	0.0	177.7	0.0	242
360 min Winter	14.441	0.0	188.4	0.0	360
480 min Winter	11.921	0.0	195.8	0.0	478
600 min Winter	10.272	0.0	200.7	0.0	596
720 min Winter	9.088	0.0	204.0	0.0	714
960 min Winter	7.457	0.0	206.8	0.0	952
1440 min Winter	5.562	0.0	203.4	0.0	1414
2160 min Winter	4.067	0.0	425.7	0.0	2116
2880 min Winter	3.231	0.0	415.3	0.0	2792
4320 min Winter	2.313	0.0	378.9	0.0	4104
5760 min Winter	1.823	0.0	781.3	0.0	4848
7200 min Winter	1.519	0.0	755.4	0.0	5616
8640 min Winter	1.311	0.0	722.8	0.0	6488
10080 min Winter	1.160	0.0	684.6	0.0	7456

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Date 23/11/2018 File DRAINAGE AREA A, LEASUR...	Designed by SAH Checked by	
Micro Drainage	Source Control 2017.1.2	


Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	1.000
FEH Rainfall Version	2013	Cv (Winter)	1.000
Site Location	GB 618329 134790	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+20

Time Area Diagram

Total Area (ha) 0.752

Time (mins)		Area
From:	To:	(ha)
0	4	0.752

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Date 23/11/2018 File DRAINAGE AREA A, LEASUR...	Designed by SAH Checked by	
Micro Drainage	Source Control 2017.1.2	

Model Details

Storage is Online Cover Level (m) 10.000

Porous Car Park Structure


Infiltration Coefficient Base (m/hr) 0.00000	Width (m) 67.0	
Membrane Percolation (mm/hr) 1000	Length (m) 67.0	
Max Percolation (l/s) 1246.9	Slope (1:X) 0.0	
Safety Factor 2.0	Depression Storage (mm) 5	
Porosity 0.30	Evaporation (mm/day) 3	
Invert Level (m) 9.000	Membrane Depth (m) 0	

Orifice Outflow Control

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 9.000

Pipe Overflow Control


Diameter (m) 0.150	Entry Loss Coefficient 0.500	
Slope (1:X) 100.0	Coefficient of Contraction 0.600	
Length (m) 10.000	Upstream Invert Level (m) 9.800	
Manning's n 0.015		

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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Road and public carpark	
Date 23/11/2018 File DRAINAGE AREA B, PUBLIC...	Designed by SAH Checked by	
Micro Drainage	Source Control 2017.1.2	

Summary of Results for 100 year Return Period (+20%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Overflow (l/s)	Max Outflow (l/s)	Max Volume (m ³)	Status
15 min Summer	9.287	0.287	1.6	0.0	1.6	439.6	O K
30 min Summer	9.360	0.360	1.6	0.0	1.6	584.7	O K
60 min Summer	9.431	0.431	1.7	0.0	1.7	739.4	O K
120 min Summer	9.501	0.501	1.7	0.0	1.7	908.5	O K
180 min Summer	9.545	0.545	1.7	0.0	1.7	1023.1	O K
240 min Summer	9.578	0.578	1.7	0.0	1.7	1113.7	O K
360 min Summer	9.628	0.628	1.7	0.0	1.7	1258.9	O K
480 min Summer	9.665	0.665	1.7	0.0	1.7	1378.3	O K
600 min Summer	9.695	0.695	1.7	0.0	1.7	1477.2	O K
720 min Summer	9.720	0.720	1.7	0.0	1.7	1560.9	O K
960 min Summer	9.756	0.756	1.7	0.0	1.7	1692.1	O K
1440 min Summer	9.801	0.801	1.8	0.0	1.8	1860.3	O K
2160 min Summer	9.833	0.833	1.8	0.0	1.8	1988.2	O K
2880 min Summer	9.849	0.849	1.9	0.0	1.9	2052.7	O K
4320 min Summer	9.859	0.859	1.9	0.0	1.9	2094.6	O K
5760 min Summer	9.858	0.858	1.9	0.0	1.9	2092.8	O K
7200 min Summer	9.853	0.853	1.9	0.0	1.9	2072.6	O K
8640 min Summer	9.847	0.847	1.8	0.0	1.8	2044.4	O K
10080 min Summer	9.841	0.841	1.8	0.0	1.8	2021.1	O K
15 min Winter	9.287	0.287	1.6	0.0	1.6	439.6	O K
30 min Winter	9.360	0.360	1.7	0.0	1.7	584.7	O K


Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Overflow Volume (m ³)	Time-Peak (mins)
15 min Summer	118.731	0.0	89.8	0.0	19
30 min Summer	79.046	0.0	101.0	0.0	34
60 min Summer	50.083	0.0	215.3	0.0	64
120 min Summer	30.883	0.0	233.4	0.0	124
180 min Summer	23.263	0.0	243.6	0.0	184
240 min Summer	19.052	0.0	250.7	0.0	244
360 min Summer	14.441	0.0	260.3	0.0	364
480 min Summer	11.921	0.0	266.6	0.0	484
600 min Summer	10.272	0.0	270.8	0.0	604
720 min Summer	9.088	0.0	273.5	0.0	724
960 min Summer	7.457	0.0	275.9	0.0	964
1440 min Summer	5.562	0.0	274.0	0.0	1444
2160 min Summer	4.067	0.0	568.8	0.0	2164
2880 min Summer	3.231	0.0	561.2	0.0	2884
4320 min Summer	2.313	0.0	536.0	0.0	4320
5760 min Summer	1.823	0.0	1117.9	0.0	5760
7200 min Summer	1.519	0.0	1096.5	0.0	7200
8640 min Summer	1.311	0.0	1070.6	0.0	8216
10080 min Summer	1.160	0.0	1040.8	0.0	8776
15 min Winter	118.731	0.0	89.8	0.0	19
30 min Winter	79.046	0.0	101.0	0.0	34

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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Road and public carpark	
Date 23/11/2018 File DRAINAGE AREA B, PUBLIC...	Designed by SAH Checked by	
Micro Drainage	Source Control 2017.1.2	

Summary of Results for 100 year Return Period (+20%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Overflow (l/s)	Max Outflow (l/s)	Max Volume (m ³)	Status
60 min Winter	9.431	0.431	1.7	0.0	1.7	739.4	O K
120 min Winter	9.501	0.501	1.7	0.0	1.7	908.6	O K
180 min Winter	9.545	0.545	1.7	0.0	1.7	1023.3	O K
240 min Winter	9.578	0.578	1.7	0.0	1.7	1114.1	O K
360 min Winter	9.628	0.628	1.7	0.0	1.7	1259.6	O K
480 min Winter	9.666	0.666	1.7	0.0	1.7	1379.2	O K
600 min Winter	9.696	0.696	1.7	0.0	1.7	1478.4	O K
720 min Winter	9.720	0.720	1.7	0.0	1.7	1562.2	O K
960 min Winter	9.757	0.757	1.7	0.0	1.7	1694.0	O K
1440 min Winter	9.802	0.802	1.8	0.0	1.8	1863.2	O K
2160 min Winter	9.834	0.834	1.8	0.0	1.8	1992.6	O K
2880 min Winter	9.850	0.850	1.9	0.0	1.9	2059.0	O K
4320 min Winter	9.861	0.861	1.9	0.0	1.9	2105.7	O K
5760 min Winter	9.862	0.862	1.9	0.0	1.9	2109.7	O K
7200 min Winter	9.859	0.859	1.9	0.0	1.9	2096.4	O K
8640 min Winter	9.854	0.854	1.9	0.0	1.9	2074.8	O K
10080 min Winter	9.848	0.848	1.8	0.0	1.8	2049.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Overflow Volume (m ³)	Time-Peak (mins)
60 min Winter	50.083	0.0	215.3	0.0	64
120 min Winter	30.883	0.0	233.3	0.0	124
180 min Winter	23.263	0.0	243.5	0.0	182
240 min Winter	19.052	0.0	250.5	0.0	242
360 min Winter	14.441	0.0	259.9	0.0	362
480 min Winter	11.921	0.0	266.0	0.0	480
600 min Winter	10.272	0.0	270.0	0.0	598
720 min Winter	9.088	0.0	272.6	0.0	716
960 min Winter	7.457	0.0	274.7	0.0	954
1440 min Winter	5.562	0.0	272.2	0.0	1428
2160 min Winter	4.067	0.0	566.3	0.0	2136
2880 min Winter	3.231	0.0	557.9	0.0	2828
4320 min Winter	2.313	0.0	530.9	0.0	4232
5760 min Winter	1.823	0.0	1111.4	0.0	5592
7200 min Winter	1.519	0.0	1088.1	0.0	6912
8640 min Winter	1.311	0.0	1060.4	0.0	8208
10080 min Winter	1.160	0.0	1029.0	0.0	9472

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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Road and public carpark	
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Micro Drainage	Source Control 2017.1.2	


Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	1.000
FEH Rainfall Version	2013	Cv (Winter)	1.000
Site Location	GB 618329 134790	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+20

Time Area Diagram

Total Area (ha) 1.484

Time (mins)		Area
From:	To:	(ha)
0	4	1.484

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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Road and public carpark	
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Micro Drainage	Source Control 2017.1.2	

Model Details

Storage is Online Cover Level (m) 10.000

Tank or Pond Structure

Invert Level (m) 9.000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	1200.0	0.500	2500.0	1.000	5000.0

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-CHE-0064-2000-1000-2000
Design Head (m)	1.000
Design Flow (l/s)	2.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	No
Diameter (mm)	64
Invert Level (m)	9.000
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200


Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	2.0
Flush-Flo™	0.156	1.7
Kick-Flo®	0.223	1.0
Mean Flow over Head Range	-	1.4

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	1.3	1.200	2.2	3.000	3.4	7.000	5.2
0.200	1.1	1.400	2.4	3.500	3.7	7.500	5.4
0.300	1.1	1.600	2.5	4.000	4.0	8.000	5.6
0.400	1.3	1.800	2.7	4.500	4.2	8.500	5.7
0.500	1.4	2.000	2.8	5.000	4.4	9.000	5.9
0.600	1.6	2.200	2.9	5.500	4.6	9.500	6.0
0.800	1.8	2.400	3.1	6.000	4.8		
1.000	2.0	2.600	3.2	6.500	5.0		

Weir Overflow Control

Discharge Coef 0.544 Width (m) 0.200 Invert Level (m) 9.960

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Micro Drainage		Source Control 2017.1.2

Summary of Results for 100 year Return Period (+20%)

Half Drain Time : 6397 minutes.


Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Overflow (l/s)	Max Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	8.285	0.285	0.0	1.2	0.0	1.2	271.2	O K
30 min Summer	8.380	0.380	0.0	1.3	0.0	1.3	360.6	O K
60 min Summer	8.480	0.480	0.0	1.3	0.0	1.3	455.7	O K
120 min Summer	8.589	0.589	0.0	1.3	0.0	1.3	559.1	O K
180 min Summer	8.662	0.662	0.0	1.3	0.0	1.3	628.8	O K
240 min Summer	8.720	0.720	0.0	1.4	0.0	1.4	683.6	O K
360 min Summer	8.811	0.811	0.0	1.5	0.0	1.5	770.8	O K
480 min Summer	8.886	0.886	0.0	1.5	0.0	1.5	841.9	O K
600 min Summer	8.947	0.947	0.0	1.6	0.0	1.6	900.1	O K
720 min Summer	8.999	0.999	0.0	1.6	0.0	1.6	948.8	O K
960 min Summer	9.078	1.078	0.0	1.7	0.0	1.7	1023.8	O K
1440 min Summer	9.174	1.174	0.0	1.8	0.0	1.8	1115.1	O K
2160 min Summer	9.237	1.237	0.0	1.8	0.0	1.8	1175.1	O K
2880 min Summer	9.259	1.259	0.0	1.8	0.0	1.8	1196.4	O K
4320 min Summer	9.249	1.249	0.0	1.8	0.0	1.8	1186.6	O K
5760 min Summer	9.221	1.221	0.0	1.8	0.0	1.8	1159.7	O K
7200 min Summer	9.197	1.197	0.0	1.8	0.0	1.8	1136.9	O K
8640 min Summer	9.176	1.176	0.0	1.8	0.0	1.8	1116.9	O K
10080 min Summer	9.158	1.158	0.0	1.8	0.0	1.8	1099.8	O K
15 min Winter	8.285	0.285	0.0	1.3	0.0	1.3	271.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Overflow Volume (m³)	Time-Peak (mins)
15 min Summer	118.731	0.0	71.4	0.0	19
30 min Summer	79.046	0.0	82.6	0.0	34
60 min Summer	50.083	0.0	176.6	0.0	64
120 min Summer	30.883	0.0	196.9	0.0	124
180 min Summer	23.263	0.0	209.2	0.0	184
240 min Summer	19.052	0.0	218.0	0.0	244
360 min Summer	14.441	0.0	230.7	0.0	364
480 min Summer	11.921	0.0	239.8	0.0	484
600 min Summer	10.272	0.0	246.2	0.0	604
720 min Summer	9.088	0.0	250.8	0.0	724
960 min Summer	7.457	0.0	255.7	0.0	962
1440 min Summer	5.562	0.0	255.7	0.0	1442
2160 min Summer	4.067	0.0	527.1	0.0	2160
2880 min Summer	3.231	0.0	521.1	0.0	2880
4320 min Summer	2.313	0.0	492.1	0.0	4320
5760 min Summer	1.823	0.0	992.1	0.0	4968
7200 min Summer	1.519	0.0	973.4	0.0	5696
8640 min Summer	1.311	0.0	946.7	0.0	6480
10080 min Summer	1.160	0.0	912.8	0.0	7264
15 min Winter	118.731	0.0	71.4	0.0	19

Summary of Results for 100 year Return Period (+20%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Overflow (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	8.380	0.380	0.0	1.3	0.0	1.3	360.6	O K
60 min Winter	8.480	0.480	0.0	1.3	0.0	1.3	455.7	O K
120 min Winter	8.589	0.589	0.0	1.3	0.0	1.3	559.2	O K
180 min Winter	8.662	0.662	0.0	1.3	0.0	1.3	629.0	O K
240 min Winter	8.720	0.720	0.0	1.4	0.0	1.4	683.9	O K
360 min Winter	8.812	0.812	0.0	1.5	0.0	1.5	771.4	O K
480 min Winter	8.887	0.887	0.0	1.5	0.0	1.5	842.6	O K
600 min Winter	8.949	0.949	0.0	1.6	0.0	1.6	901.1	O K
720 min Winter	9.000	1.000	0.0	1.6	0.0	1.6	950.0	O K
960 min Winter	9.079	1.079	0.0	1.7	0.0	1.7	1025.5	O K
1440 min Winter	9.177	1.177	0.0	1.8	0.0	1.8	1117.7	O K
2160 min Winter	9.242	1.242	0.0	1.8	0.0	1.8	1179.7	O K
2880 min Winter	9.267	1.267	0.0	1.8	0.0	1.8	1203.2	O K
4320 min Winter	9.263	1.263	0.0	1.8	0.0	1.8	1199.6	O K
5760 min Winter	9.235	1.235	0.0	1.8	0.0	1.8	1173.3	O K
7200 min Winter	9.204	1.204	0.0	1.8	0.0	1.8	1144.2	O K
8640 min Winter	9.182	1.182	0.0	1.8	0.0	1.8	1122.8	O K
10080 min Winter	9.160	1.160	0.0	1.8	0.0	1.8	1102.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Overflow Volume (m³)	Time-Peak (mins)
30 min Winter	79.046	0.0	82.7	0.0	34
60 min Winter	50.083	0.0	176.6	0.0	64
120 min Winter	30.883	0.0	196.9	0.0	124
180 min Winter	23.263	0.0	209.1	0.0	182
240 min Winter	19.052	0.0	217.9	0.0	242
360 min Winter	14.441	0.0	230.4	0.0	360
480 min Winter	11.921	0.0	239.4	0.0	478
600 min Winter	10.272	0.0	245.7	0.0	596
720 min Winter	9.088	0.0	250.1	0.0	716
960 min Winter	7.457	0.0	254.9	0.0	952
1440 min Winter	5.562	0.0	254.5	0.0	1424
2160 min Winter	4.067	0.0	525.5	0.0	2116
2880 min Winter	3.231	0.0	519.0	0.0	2796
4320 min Winter	2.313	0.0	488.6	0.0	4148
5760 min Winter	1.823	0.0	988.4	0.0	5408
7200 min Winter	1.519	0.0	968.6	0.0	5840
8640 min Winter	1.311	0.0	940.9	0.0	6736
10080 min Winter	1.160	0.0	906.2	0.0	7656

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Micro Drainage	Source Control 2017.1.2	


Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	1.000
FEH Rainfall Version	2013	Cv (Winter)	1.000
Site Location	GB 618329 134790	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+20

Time Area Diagram

Total Area (ha) 0.916

Time (mins)		Area
From:	To:	(ha)
0	4	0.916

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Micro Drainage	Source Control 2017.1.2	

Model Details

Storage is Online Cover Level (m) 10.000

Cellular Storage Structure

Invert Level (m) 8.000 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	1000.0	1000.0	1.501	0.0	1189.8
1.500	1000.0	1189.7			


Hydro-Brake® Optimum Outflow Control

Unit Reference MD-CHE-0058-2000-1500-2000
 Design Head (m) 1.500
 Design Flow (l/s) 2.0
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available No
 Diameter (mm) 58
 Invert Level (m) 8.000
 Minimum Outlet Pipe Diameter (mm) 75
 Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.500	2.0
Flush-Flo™	0.141	1.3
Kick-Flo®	0.202	0.8
Mean Flow over Head Range	-	1.4


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	1.1	1.200	1.8	3.000	2.8	7.000	4.3
0.200	0.8	1.400	1.9	3.500	3.0	7.500	4.4
0.300	0.9	1.600	2.1	4.000	3.2	8.000	4.5
0.400	1.0	1.800	2.2	4.500	3.4	8.500	4.7
0.500	1.2	2.000	2.3	5.000	3.6	9.000	4.8
0.600	1.3	2.200	2.4	5.500	3.8	9.500	4.9
0.800	1.5	2.400	2.5	6.000	3.9		
1.000	1.6	2.600	2.6	6.500	4.1		

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Micro Drainage	Source Control 2017.1.2	

Pipe Overflow Control

Diameter (m) 0.150 Entry Loss Coefficient 0.500
 Slope (1:X) 100.0 Coefficient of Contraction 0.600
 Length (m) 10.000 Upstream Invert Level (m) 9.300
 Manning's n 0.015


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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Private West	
Date 23/11/2018 File DRAINAGE AREA D, PRIVAT...	Designed by SAH Checked by	
Micro Drainage		Source Control 2017.1.2

Summary of Results for 100 year Return Period (+20%)

Half Drain Time : 6675 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Overflow (l/s)	Max Outflow (l/s)	Max Volume (m ³)	Status
15 min Summer	8.307	0.307	0.0	1.3	0.0	1.3	292.0	O K
30 min Summer	8.409	0.409	0.0	1.3	0.0	1.3	388.2	O K
60 min Summer	8.516	0.516	0.0	1.3	0.0	1.3	490.6	O K
120 min Summer	8.634	0.634	0.0	1.3	0.0	1.3	602.1	O K
180 min Summer	8.713	0.713	0.0	1.4	0.0	1.4	677.3	O K
240 min Summer	8.775	0.775	0.0	1.4	0.0	1.4	736.5	O K
360 min Summer	8.874	0.874	0.0	1.5	0.0	1.5	830.7	O K
480 min Summer	8.955	0.955	0.0	1.6	0.0	1.6	907.6	O K
600 min Summer	9.022	1.022	0.0	1.7	0.0	1.7	970.7	O K
720 min Summer	9.077	1.077	0.0	1.7	0.0	1.7	1023.5	O K
960 min Summer	9.163	1.163	0.0	1.8	0.0	1.8	1105.0	O K
1440 min Summer	9.268	1.268	0.0	1.8	0.0	1.8	1205.0	O K
2160 min Summer	9.339	1.339	0.0	1.9	0.0	1.9	1272.1	O K
2880 min Summer	9.366	1.366	0.0	1.9	0.0	1.9	1297.4	O K
4320 min Summer	9.359	1.359	0.0	1.9	0.0	1.9	1291.3	O K
5760 min Summer	9.330	1.330	0.0	1.9	0.0	1.9	1263.8	O K
7200 min Summer	9.306	1.306	0.0	1.9	0.0	1.9	1240.4	O K
8640 min Summer	9.284	1.284	0.0	1.9	0.0	1.9	1219.8	O K
10080 min Summer	9.265	1.265	0.0	1.8	0.0	1.8	1202.2	O K
15 min Winter	8.307	0.307	0.0	1.3	0.0	1.3	291.9	O K


Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Overflow Volume (m ³)	Time-Peak (mins)
15 min Summer	118.731	0.0	74.2	0.0	19
30 min Summer	79.046	0.0	85.9	0.0	34
60 min Summer	50.083	0.0	183.9	0.0	64
120 min Summer	30.883	0.0	204.9	0.0	124
180 min Summer	23.263	0.0	217.6	0.0	184
240 min Summer	19.052	0.0	226.8	0.0	244
360 min Summer	14.441	0.0	239.9	0.0	364
480 min Summer	11.921	0.0	249.2	0.0	484
600 min Summer	10.272	0.0	255.8	0.0	604
720 min Summer	9.088	0.0	260.4	0.0	724
960 min Summer	7.457	0.0	265.5	0.0	962
1440 min Summer	5.562	0.0	265.2	0.0	1442
2160 min Summer	4.067	0.0	548.2	0.0	2160
2880 min Summer	3.231	0.0	541.5	0.0	2880
4320 min Summer	2.313	0.0	510.6	0.0	4320
5760 min Summer	1.823	0.0	1036.1	0.0	5128
7200 min Summer	1.519	0.0	1015.9	0.0	5832
8640 min Summer	1.311	0.0	987.4	0.0	6568
10080 min Summer	1.160	0.0	951.9	0.0	7352
15 min Winter	118.731	0.0	74.2	0.0	19

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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Private West	
Date 23/11/2018 File DRAINAGE AREA D, PRIVAT...	Designed by SAH Checked by	
Micro Drainage	Source Control 2017.1.2	

Summary of Results for 100 year Return Period (+20%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Overflow (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	8.409	0.409	0.0	1.3	0.0	1.3	388.2	O K
60 min Winter	8.516	0.516	0.0	1.3	0.0	1.3	490.6	O K
120 min Winter	8.634	0.634	0.0	1.3	0.0	1.3	602.2	O K
180 min Winter	8.713	0.713	0.0	1.4	0.0	1.4	677.5	O K
240 min Winter	8.776	0.776	0.0	1.4	0.0	1.4	736.8	O K
360 min Winter	8.875	0.875	0.0	1.5	0.0	1.5	831.3	O K
480 min Winter	8.956	0.956	0.0	1.6	0.0	1.6	908.3	O K
600 min Winter	9.023	1.023	0.0	1.7	0.0	1.7	971.6	O K
720 min Winter	9.079	1.079	0.0	1.7	0.0	1.7	1024.7	O K
960 min Winter	9.165	1.165	0.0	1.8	0.0	1.8	1106.7	O K
1440 min Winter	9.271	1.271	0.0	1.8	0.0	1.8	1207.5	O K
2160 min Winter	9.344	1.344	0.0	1.9	0.0	1.9	1276.5	O K
2880 min Winter	9.373	1.373	0.0	1.9	0.0	1.9	1304.0	O K
4320 min Winter	9.373	1.373	0.0	1.9	0.0	1.9	1304.1	O K
5760 min Winter	9.346	1.346	0.0	1.9	0.0	1.9	1279.1	O K
7200 min Winter	9.314	1.314	0.0	1.9	0.0	1.9	1247.9	O K
8640 min Winter	9.291	1.291	0.0	1.9	0.0	1.9	1226.4	O K
10080 min Winter	9.270	1.270	0.0	1.8	0.0	1.8	1206.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Overflow Volume (m³)	Time-Peak (mins)
30 min Winter	79.046	0.0	85.9	0.0	34
60 min Winter	50.083	0.0	183.8	0.0	64
120 min Winter	30.883	0.0	204.8	0.0	124
180 min Winter	23.263	0.0	217.5	0.0	182
240 min Winter	19.052	0.0	226.6	0.0	242
360 min Winter	14.441	0.0	239.6	0.0	360
480 min Winter	11.921	0.0	248.8	0.0	478
600 min Winter	10.272	0.0	255.3	0.0	596
720 min Winter	9.088	0.0	259.8	0.0	716
960 min Winter	7.457	0.0	264.7	0.0	952
1440 min Winter	5.562	0.0	264.0	0.0	1426
2160 min Winter	4.067	0.0	546.8	0.0	2120
2880 min Winter	3.231	0.0	539.6	0.0	2800
4320 min Winter	2.313	0.0	507.4	0.0	4148
5760 min Winter	1.823	0.0	1032.6	0.0	5416
7200 min Winter	1.519	0.0	1011.2	0.0	5976
8640 min Winter	1.311	0.0	981.6	0.0	6744
10080 min Winter	1.160	0.0	945.0	0.0	7664

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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Private West	
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Micro Drainage	Source Control 2017.1.2	


Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	1.000
FEH Rainfall Version	2013	Cv (Winter)	1.000
Site Location	GB 618329 134790	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+20

Time Area Diagram

Total Area (ha) 0.986

Time (mins)		Area
From:	To:	(ha)
0	4	0.986

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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Private West	
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Micro Drainage	Source Control 2017.1.2	

Model Details

Storage is Online Cover Level (m) 10.000

Cellular Storage Structure

Invert Level (m) 8.000 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	1000.0	1000.0	1.501	0.0	1189.8
1.500	1000.0	1189.7			


Hydro-Brake® Optimum Outflow Control

Unit Reference MD-CHE-0058-2000-1500-2000
 Design Head (m) 1.500
 Design Flow (l/s) 2.0
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available No
 Diameter (mm) 58
 Invert Level (m) 8.000
 Minimum Outlet Pipe Diameter (mm) 75
 Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.500	2.0
Flush-Flo™	0.141	1.3
Kick-Flo®	0.202	0.8
Mean Flow over Head Range	-	1.4


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	1.1	1.200	1.8	3.000	2.8	7.000	4.3
0.200	0.8	1.400	1.9	3.500	3.0	7.500	4.4
0.300	0.9	1.600	2.1	4.000	3.2	8.000	4.5
0.400	1.0	1.800	2.2	4.500	3.4	8.500	4.7
0.500	1.2	2.000	2.3	5.000	3.6	9.000	4.8
0.600	1.3	2.200	2.4	5.500	3.8	9.500	4.9
0.800	1.5	2.400	2.5	6.000	3.9		
1.000	1.6	2.600	2.6	6.500	4.1		

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Micro Drainage	Source Control 2017.1.2	

Pipe Overflow Control

Diameter (m) 0.150 Entry Loss Coefficient 0.500
 Slope (1:X) 100.0 Coefficient of Contraction 0.600
 Length (m) 10.000 Upstream Invert Level (m) 9.400
 Manning's n 0.015

Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Drainage Area E	
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Date 23/11/2018 File	Designed by SAH Checked by	
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Micro Drainage	Source Control 2017.1.2
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Cascade Summary of Results for Drainage Area E, Basin and Storage.SRCX

Upstream Structures	Outflow To	Overflow To
Drainage Area C, Private East.SRCX	(None)	(None)
Drainage Area D, Private West.SRCX		

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
15 min Summer	8.594	0.094	2.7	75.5	O K
30 min Summer	8.625	0.125	2.7	100.0	O K
60 min Summer	8.658	0.158	2.8	126.1	O K
120 min Summer	8.692	0.192	2.9	153.8	O K
180 min Summer	8.716	0.216	2.9	172.6	O K
240 min Summer	8.734	0.234	3.0	187.5	O K
360 min Summer	8.765	0.265	3.0	211.6	O K
480 min Summer	8.791	0.291	3.1	232.8	O K
600 min Summer	8.815	0.315	3.1	252.2	O K
720 min Summer	8.837	0.337	3.2	269.7	O K
960 min Summer	8.874	0.374	3.2	299.2	O K
1440 min Summer	8.925	0.425	3.3	339.7	O K
2160 min Summer	8.968	0.468	3.4	374.8	O K
2880 min Summer	8.994	0.494	3.5	395.4	O K
4320 min Summer	9.501	1.001	4.3	400.8	O K
5760 min Summer	9.437	0.937	4.2	400.7	O K
7200 min Summer	9.374	0.874	4.1	400.6	O K
8640 min Summer	9.328	0.828	4.0	400.6	O K


Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
15 min Summer	118.731	0.0	220.3	19
30 min Summer	79.046	0.0	228.5	34
60 min Summer	50.083	0.0	461.3	64
120 min Summer	30.883	0.0	480.5	124
180 min Summer	23.263	0.0	492.2	184
240 min Summer	19.052	0.0	500.6	244
360 min Summer	14.441	0.0	512.4	364
480 min Summer	11.921	0.0	520.7	914
600 min Summer	10.272	0.0	526.4	1380
720 min Summer	9.088	0.0	530.0	1754
960 min Summer	7.457	0.0	532.5	2340
1440 min Summer	5.562	0.0	526.9	2880
2160 min Summer	4.067	0.0	1094.7	3964
2880 min Summer	3.231	0.0	1075.2	4612
4320 min Summer	2.313	0.0	1033.8	4320
5760 min Summer	1.823	0.0	2163.8	5248
7200 min Summer	1.519	0.0	2111.8	6264
8640 min Summer	1.311	0.0	2049.3	7256

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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Drainage Area E	
Date 23/11/2018 File	Designed by SAH Checked by	
Micro Drainage	Source Control 2017.1.2	

Cascade Summary of Results for Drainage Area E, Basin and Storage.SRCX

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
10080 min Summer	9.286	0.786	3.9	400.6	O K
15 min Winter	8.594	0.094	2.7	75.5	O K
30 min Winter	8.625	0.125	2.7	100.1	O K
60 min Winter	8.658	0.158	2.8	126.0	O K
120 min Winter	8.692	0.192	2.9	153.9	O K
180 min Winter	8.716	0.216	2.9	172.7	O K
240 min Winter	8.734	0.234	3.0	187.5	O K
360 min Winter	8.765	0.265	3.0	211.7	O K
480 min Winter	8.791	0.291	3.1	233.1	O K
600 min Winter	8.816	0.316	3.1	252.6	O K
720 min Winter	8.838	0.338	3.2	270.2	O K
960 min Winter	8.875	0.375	3.2	299.6	O K
1440 min Winter	8.925	0.425	3.3	340.0	O K
2160 min Winter	8.969	0.469	3.4	375.0	O K
2880 min Winter	8.994	0.494	3.5	395.5	O K
4320 min Winter	9.426	0.926	4.2	400.7	O K
5760 min Winter	9.501	1.001	4.3	400.8	O K
7200 min Winter	9.425	0.925	4.2	400.7	O K
8640 min Winter	9.352	0.852	4.0	400.6	O K
10080 min Winter	9.295	0.795	4.0	400.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
10080 min Summer	1.160	0.0	1979.0	8264
15 min Winter	118.731	0.0	220.3	19
30 min Winter	79.046	0.0	228.5	34
60 min Winter	50.083	0.0	461.3	64
120 min Winter	30.883	0.0	480.4	124
180 min Winter	23.263	0.0	491.9	182
240 min Winter	19.052	0.0	500.1	242
360 min Winter	14.441	0.0	511.7	364
480 min Winter	11.921	0.0	519.6	920
600 min Winter	10.272	0.0	524.9	1380
720 min Winter	9.088	0.0	528.2	1756
960 min Winter	7.457	0.0	530.4	2336
1440 min Winter	5.562	0.0	524.3	2880
2160 min Winter	4.067	0.0	1091.3	3976
2880 min Winter	3.231	0.0	1070.9	4632
4320 min Winter	2.313	0.0	1027.1	4192
5760 min Winter	1.823	0.0	2155.3	5304
7200 min Winter	1.519	0.0	2100.8	6384
8640 min Winter	1.311	0.0	2036.4	7392
10080 min Winter	1.160	0.0	1964.7	8456

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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Drainage Area E	
Date 23/11/2018 File	Designed by SAH Checked by	
Micro Drainage	Source Control 2017.1.2	


Cascade Rainfall Details for Drainage Area E, Basin and Storage.SRCX

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	1.000
FEH Rainfall Version	2013	Cv (Winter)	1.000
Site Location	GB 618329 134790	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+20

Time Area Diagram

Total Area (ha) 0.259

Time (mins)		Area
From:	To:	(ha)
0	4	0.259

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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Drainage Area E	
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Micro Drainage		Source Control 2017.1.2

Cascade Model Details for Drainage Area E, Basin and Storage.SRCX

Storage is Online Cover Level (m) 10.000


Tank or Pond Structure

Invert Level (m) 8.500

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	800.0	0.501	1.0	1.001	640.0
0.500	800.0	1.000	1.0	1.500	1000.0

Orifice Outflow Control

Diameter (m) 0.041 Discharge Coefficient 0.600 Invert Level (m) 8.000

Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Leasure Center 1:100+1:10	
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Date 17/12/2018 File DRAINAGE AREA A, LEASUR...	Designed by SAH Checked by	
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Micro Drainage	Source Control 2017.1.2
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Summary of Results for Input Hydrograph

Half Drain Time : 7035 minutes.

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
Input Hydrograph	9.984	0.984	0.0	1.8	1.8	1325.1	O K

Storm Event	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
Input Hydrograph	0.0	623.9	3008

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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Leisure Center 1:100+1:10	
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Micro Drainage		Source Control 2017.1.2

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)
4	0.0	204	0.0	404	2.8	604	3.1	804	4.9	1004	8.6
8	0.0	208	0.0	408	2.8	608	3.3	808	5.1	1008	8.6
12	0.0	212	0.0	412	2.8	612	3.3	812	5.3	1012	9.2
16	0.0	216	0.0	416	2.8	616	3.3	816	5.3	1016	9.2
20	0.0	220	0.0	420	2.8	620	3.3	820	5.3	1020	9.2
24	0.0	224	0.0	424	2.8	624	3.3	824	5.3	1024	9.2
28	0.0	228	0.0	428	2.8	628	3.3	828	5.3	1028	9.2
32	0.0	232	2.4	432	2.8	632	3.3	832	5.3	1032	9.2
36	0.0	236	2.7	436	2.8	636	3.4	836	5.4	1036	9.2
40	0.0	240	2.7	440	2.8	640	3.5	840	5.8	1040	9.7
44	0.0	244	2.7	444	2.8	644	3.5	844	5.8	1044	9.8
48	0.0	248	2.7	448	2.8	648	3.5	848	5.8	1048	9.8
52	0.0	252	2.7	452	2.8	652	3.5	852	5.8	1052	9.8
56	0.0	256	2.7	456	2.8	656	3.5	856	5.8	1056	9.8
60	0.0	260	2.8	460	2.8	660	3.5	860	5.8	1060	9.8
64	0.0	264	2.8	464	2.9	664	3.5	864	5.8	1064	9.8
68	0.0	268	2.8	468	2.9	668	3.7	868	6.3	1068	10.2
72	0.0	272	2.8	472	2.9	672	3.7	872	6.3	1072	10.5
76	0.0	276	2.8	476	2.9	676	3.7	876	6.3	1076	10.5
80	0.0	280	2.8	480	2.9	680	3.7	880	6.3	1080	10.5
84	0.0	284	2.8	484	2.9	684	3.7	884	6.3	1084	10.5
88	0.0	288	2.8	488	2.9	688	3.7	888	6.3	1088	10.5
92	0.0	292	2.8	492	2.9	692	3.7	892	6.3	1092	10.5
96	0.0	296	2.8	496	2.9	696	3.9	896	6.7	1096	10.8
100	0.0	300	2.8	500	2.9	700	3.9	900	6.8	1100	11.2
104	0.0	304	2.8	504	2.9	704	3.9	904	6.8	1104	11.2
108	0.0	308	2.8	508	2.9	708	3.9	908	6.8	1108	11.2
112	0.0	312	2.8	512	2.9	712	3.9	912	6.8	1112	11.2
116	0.0	316	2.8	516	2.9	716	3.9	916	6.8	1116	11.2
120	0.0	320	2.8	520	2.9	720	3.9	920	6.8	1120	11.2
124	0.0	324	2.9	524	2.9	724	4.2	924	7.1	1124	11.3
128	0.0	328	2.9	528	2.9	728	4.2	928	7.4	1128	11.9
132	0.0	332	2.9	532	2.9	732	4.2	932	7.4	1132	11.9
136	0.0	336	2.9	536	2.9	736	4.2	936	7.4	1136	11.9
140	0.0	340	2.9	540	2.9	740	4.2	940	7.4	1140	11.9
144	0.0	344	2.9	544	2.9	744	4.2	944	7.4	1144	11.9
148	0.0	348	2.9	548	3.0	748	4.2	948	7.4	1148	11.9
152	0.0	352	2.9	552	3.0	752	4.5	952	7.6	1152	11.9
156	0.0	356	2.9	556	3.0	756	4.6	956	7.9	1156	12.5
160	0.0	360	2.9	560	3.0	760	4.6	960	7.9	1160	12.5
164	0.0	364	2.9	564	3.0	764	4.6	964	7.9	1164	12.5
168	0.0	368	2.9	568	3.0	768	4.6	968	7.9	1168	12.5
172	0.0	372	2.9	572	3.0	772	4.6	972	7.9	1172	12.5
176	0.0	376	2.9	576	3.0	776	4.6	976	7.9	1176	12.5
180	0.0	380	2.8	580	3.1	780	4.8	980	8.1	1180	12.5
184	0.0	384	2.8	584	3.1	784	4.9	984	8.6	1184	13.0
188	0.0	388	2.8	588	3.1	788	4.9	988	8.6	1188	13.2
192	0.0	392	2.8	592	3.1	792	4.9	992	8.6	1192	13.2
196	0.0	396	2.8	596	3.1	796	4.9	996	8.6	1196	13.2
200	0.0	400	2.8	600	3.1	800	4.9	1000	8.6	1200	13.2

Unit 6 - Barham Business Park
 Elham Valley Road
 Barham CT4 6DQ

Princes Parade
 Leisure Center
 1:100+1:10




Date 17/12/2018
 File DRAINAGE AREA A, LEASUR...

Designed by SAH
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Micro Drainage Source Control 2017.1.2


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)
1204	13.2	1404	16.7	1604	15.0	1804	10.5	2004	6.3	2204	3.7
1208	13.2	1408	16.7	1608	15.0	1808	10.5	2008	6.3	2208	3.7
1212	13.6	1412	16.7	1612	15.0	1812	10.5	2012	6.3	2212	3.7
1216	13.8	1416	16.9	1616	14.5	1816	10.2	2016	6.3	2216	3.7
1220	13.8	1420	16.9	1620	14.4	1820	9.8	2020	5.8	2220	3.5
1224	13.8	1424	16.9	1624	14.4	1824	9.8	2024	5.8	2224	3.5
1228	13.8	1428	16.9	1628	14.4	1828	9.8	2028	5.8	2228	3.5
1232	13.8	1432	16.9	1632	14.4	1832	9.8	2032	5.8	2232	3.5
1236	13.8	1436	16.9	1636	14.4	1836	9.8	2036	5.8	2236	3.5
1240	14.0	1440	16.9	1640	14.4	1840	9.8	2040	5.8	2240	3.5
1244	14.4	1444	16.9	1644	14.0	1844	9.7	2044	5.8	2244	3.5
1248	14.4	1448	16.9	1648	13.8	1848	9.2	2048	5.4	2248	3.4
1252	14.4	1452	16.9	1652	13.8	1852	9.2	2052	5.3	2252	3.3
1256	14.4	1456	16.9	1656	13.8	1856	9.2	2056	5.3	2256	3.3
1260	14.4	1460	16.9	1660	13.8	1860	9.2	2060	5.3	2260	3.3
1264	14.4	1464	16.9	1664	13.8	1864	9.2	2064	5.3	2264	3.3
1268	14.5	1468	16.9	1668	13.8	1868	9.2	2068	5.3	2268	3.3
1272	15.0	1472	16.7	1672	13.6	1872	9.2	2072	5.3	2272	3.3
1276	15.0	1476	16.7	1676	13.2	1876	8.6	2076	5.1	2276	3.3
1280	15.0	1480	16.7	1680	13.2	1880	8.6	2080	4.9	2280	3.1
1284	15.0	1484	16.7	1684	13.2	1884	8.6	2084	4.9	2284	3.1
1288	15.0	1488	16.7	1688	13.2	1888	8.6	2088	4.9	2288	3.1
1292	15.0	1492	16.7	1692	13.2	1892	8.6	2092	4.9	2292	3.1
1296	15.0	1496	16.7	1696	13.2	1896	8.6	2096	4.9	2296	3.1
1300	15.5	1500	16.5	1700	13.0	1900	8.6	2100	4.9	2300	3.1
1304	15.5	1504	16.4	1704	12.5	1904	8.1	2104	4.8	2304	3.1
1308	15.5	1508	16.4	1708	12.5	1908	7.9	2108	4.6	2308	3.0
1312	15.5	1512	16.4	1712	12.5	1912	7.9	2112	4.6	2312	3.0
1316	15.5	1516	16.4	1716	12.5	1916	7.9	2116	4.6	2316	3.0
1320	15.5	1520	16.4	1720	12.5	1920	7.9	2120	4.6	2320	3.0
1324	15.5	1524	16.4	1724	12.5	1924	7.9	2124	4.6	2324	3.0
1328	15.9	1528	16.2	1728	12.5	1928	7.9	2128	4.6	2328	3.0
1332	16.0	1532	16.0	1732	11.9	1932	7.6	2132	4.5	2332	3.0
1336	16.0	1536	16.0	1736	11.9	1936	7.4	2136	4.2	2336	3.0
1340	16.0	1540	16.0	1740	11.9	1940	7.4	2140	4.2	2340	2.9
1344	16.0	1544	16.0	1744	11.9	1944	7.4	2144	4.2	2344	2.9
1348	16.0	1548	16.0	1748	11.9	1948	7.4	2148	4.2	2348	2.9
1352	16.0	1552	16.0	1752	11.9	1952	7.4	2152	4.2	2352	2.9
1356	16.2	1556	15.9	1756	11.9	1956	7.4	2156	4.2	2356	2.9
1360	16.4	1560	15.5	1760	11.3	1960	7.1	2160	4.2	2360	2.9
1364	16.4	1564	15.5	1764	11.2	1964	6.8	2164	3.9	2364	2.9
1368	16.4	1568	15.5	1768	11.2	1968	6.8	2168	3.9	2368	2.9
1372	16.4	1572	15.5	1772	11.2	1972	6.8	2172	3.9	2372	2.9
1376	16.4	1576	15.5	1776	11.2	1976	6.8	2176	3.9	2376	2.9
1380	16.4	1580	15.5	1780	11.2	1980	6.8	2180	3.9	2380	2.9
1384	16.5	1584	15.5	1784	11.2	1984	6.8	2184	3.9	2384	2.9
1388	16.7	1588	15.0	1788	10.8	1988	6.7	2188	3.9	2388	2.9
1392	16.7	1592	15.0	1792	10.5	1992	6.3	2192	3.7	2392	2.9
1396	16.7	1596	15.0	1796	10.5	1996	6.3	2196	3.7	2396	2.9
1400	16.7	1600	15.0	1800	10.5	2000	6.3	2200	3.7	2400	2.9

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Micro Drainage		Source Control 2017.1.2


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)
2404	2.9	2604	2.8	2804	1.2	3004	9.7	3204	0.0	3404	0.0
2408	2.9	2608	2.8	2808	1.2	3008	0.0	3208	0.0	3408	0.0
2412	2.9	2612	2.8	2812	1.2	3012	0.0	3212	0.0	3412	0.0
2416	2.9	2616	2.8	2816	1.2	3016	0.0	3216	0.0	3416	0.0
2420	2.9	2620	2.8	2820	1.2	3020	0.0	3220	0.0	3420	0.0
2424	2.8	2624	2.8	2824	1.0	3024	0.0	3224	0.0	3424	0.0
2428	2.8	2628	2.7	2828	0.7	3028	0.0	3228	0.0	3428	0.0
2432	2.8	2632	2.7	2832	0.7	3032	0.0	3232	0.0	3432	0.0
2436	2.8	2636	2.7	2836	0.7	3036	0.0	3236	0.0	3436	0.0
2440	2.8	2640	2.7	2840	0.7	3040	0.0	3240	0.0	3440	0.0
2444	2.8	2644	2.7	2844	0.7	3044	0.0	3244	0.0	3444	0.0
2448	2.8	2648	2.7	2848	0.7	3048	0.0	3248	0.0	3448	0.0
2452	2.8	2652	2.7	2852	0.6	3052	0.0	3252	0.0	3452	0.0
2456	2.8	2656	2.6	2856	0.1	3056	0.0	3256	0.0	3456	0.0
2460	2.8	2660	2.6	2860	0.1	3060	0.0	3260	0.0	3460	0.0
2464	2.8	2664	2.6	2864	0.1	3064	0.0	3264	0.0	3464	0.0
2468	2.8	2668	2.6	2868	0.1	3068	0.0	3268	0.0	3468	0.0
2472	2.8	2672	2.6	2872	0.1	3072	0.0	3272	0.0	3472	0.0
2476	2.8	2676	2.6	2876	0.1	3076	0.0	3276	0.0	3476	0.0
2480	2.8	2680	2.6	2880	0.1	3080	0.0	3280	0.0	3480	0.0
2484	2.8	2684	2.5	2884	0.0	3084	0.0	3284	0.0	3484	0.0
2488	2.8	2688	2.5	2888	0.0	3088	0.0	3288	0.0	3488	0.0
2492	2.8	2692	2.5	2892	0.0	3092	0.0	3292	0.0	3492	0.0
2496	2.8	2696	2.5	2896	0.0	3096	0.0	3296	0.0	3496	0.0
2500	2.8	2700	2.5	2900	0.0	3100	0.0	3300	0.0	3500	0.0
2504	2.8	2704	2.5	2904	0.0	3104	0.0	3304	0.0	3504	0.0
2508	2.9	2708	2.5	2908	0.0	3108	0.0	3308	0.0	3508	0.0
2512	2.9	2712	2.3	2912	0.0	3112	0.0	3312	0.0	3512	0.0
2516	2.9	2716	2.3	2916	25.9	3116	0.0	3316	0.0	3516	0.0
2520	2.9	2720	2.3	2920	40.1	3120	0.0	3320	0.0	3520	0.0
2524	2.9	2724	2.3	2924	50.7	3124	0.0	3324	0.0	3524	0.0
2528	2.9	2728	2.3	2928	68.9	3128	0.0	3328	0.0	3528	0.0
2532	2.9	2732	2.3	2932	97.9	3132	0.0	3332	0.0	3532	0.0
2536	2.9	2736	2.3	2936	136.5	3136	0.0	3336	0.0	3536	0.0
2540	2.9	2740	2.0	2940	184.7	3140	0.0	3340	0.0	3540	0.0
2544	2.9	2744	2.0	2944	211.9	3144	0.0	3344	0.0	3544	0.0
2548	2.9	2748	2.0	2948	184.7	3148	0.0	3348	0.0	3548	0.0
2552	2.9	2752	2.0	2952	136.5	3152	0.0	3352	0.0	3552	0.0
2556	2.9	2756	2.0	2956	97.9	3156	0.0	3356	0.0	3556	0.0
2560	2.9	2760	2.0	2960	68.9	3160	0.0	3360	0.0	3560	0.0
2564	2.8	2764	2.0	2964	50.7	3164	0.0	3364	0.0	3564	0.0
2568	2.8	2768	1.7	2968	40.1	3168	0.0	3368	0.0	3568	0.0
2572	2.8	2772	1.7	2972	34.0	3172	0.0	3372	0.0	3572	0.0
2576	2.8	2776	1.7	2976	30.2	3176	0.0	3376	0.0	3576	0.0
2580	2.8	2780	1.7	2980	27.4	3180	0.0	3380	0.0	3580	0.0
2584	2.8	2784	1.7	2984	25.1	3184	0.0	3384	0.0	3584	0.0
2588	2.8	2788	1.7	2988	23.3	3188	0.0	3388	0.0	3588	0.0
2592	2.8	2792	1.7	2992	22.0	3192	0.0	3392	0.0	3592	0.0
2596	2.8	2796	1.4	2996	21.1	3196	0.0	3396	0.0	3596	0.0
2600	2.8	2800	1.2	3000	20.0	3200	0.0	3400	0.0	3600	0.0

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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)
3604	0.0	3804	0.0	4004	0.0	4204	0.0	4404	0.0	4604	0.0
3608	0.0	3808	0.0	4008	0.0	4208	0.0	4408	0.0	4608	0.0
3612	0.0	3812	0.0	4012	0.0	4212	0.0	4412	0.0	4612	0.0
3616	0.0	3816	0.0	4016	0.0	4216	0.0	4416	0.0	4616	0.0
3620	0.0	3820	0.0	4020	0.0	4220	0.0	4420	0.0	4620	0.0
3624	0.0	3824	0.0	4024	0.0	4224	0.0	4424	0.0	4624	0.0
3628	0.0	3828	0.0	4028	0.0	4228	0.0	4428	0.0	4628	0.0
3632	0.0	3832	0.0	4032	0.0	4232	0.0	4432	0.0	4632	0.0
3636	0.0	3836	0.0	4036	0.0	4236	0.0	4436	0.0	4636	0.0
3640	0.0	3840	0.0	4040	0.0	4240	0.0	4440	0.0	4640	0.0
3644	0.0	3844	0.0	4044	0.0	4244	0.0	4444	0.0	4644	0.0
3648	0.0	3848	0.0	4048	0.0	4248	0.0	4448	0.0	4648	0.0
3652	0.0	3852	0.0	4052	0.0	4252	0.0	4452	0.0	4652	0.0
3656	0.0	3856	0.0	4056	0.0	4256	0.0	4456	0.0	4656	0.0
3660	0.0	3860	0.0	4060	0.0	4260	0.0	4460	0.0	4660	0.0
3664	0.0	3864	0.0	4064	0.0	4264	0.0	4464	0.0	4664	0.0
3668	0.0	3868	0.0	4068	0.0	4268	0.0	4468	0.0	4668	0.0
3672	0.0	3872	0.0	4072	0.0	4272	0.0	4472	0.0	4672	0.0
3676	0.0	3876	0.0	4076	0.0	4276	0.0	4476	0.0	4676	0.0
3680	0.0	3880	0.0	4080	0.0	4280	0.0	4480	0.0	4680	0.0
3684	0.0	3884	0.0	4084	0.0	4284	0.0	4484	0.0	4684	0.0
3688	0.0	3888	0.0	4088	0.0	4288	0.0	4488	0.0	4688	0.0
3692	0.0	3892	0.0	4092	0.0	4292	0.0	4492	0.0	4692	0.0
3696	0.0	3896	0.0	4096	0.0	4296	0.0	4496	0.0	4696	0.0
3700	0.0	3900	0.0	4100	0.0	4300	0.0	4500	0.0	4700	0.0
3704	0.0	3904	0.0	4104	0.0	4304	0.0	4504	0.0	4704	0.0
3708	0.0	3908	0.0	4108	0.0	4308	0.0	4508	0.0	4708	0.0
3712	0.0	3912	0.0	4112	0.0	4312	0.0	4512	0.0	4712	0.0
3716	0.0	3916	0.0	4116	0.0	4316	0.0	4516	0.0	4716	0.0
3720	0.0	3920	0.0	4120	0.0	4320	0.0	4520	0.0	4720	0.0
3724	0.0	3924	0.0	4124	0.0	4324	0.0	4524	0.0	4724	0.0
3728	0.0	3928	0.0	4128	0.0	4328	0.0	4528	0.0	4728	0.0
3732	0.0	3932	0.0	4132	0.0	4332	0.0	4532	0.0	4732	0.0
3736	0.0	3936	0.0	4136	0.0	4336	0.0	4536	0.0	4736	0.0
3740	0.0	3940	0.0	4140	0.0	4340	0.0	4540	0.0	4740	0.0
3744	0.0	3944	0.0	4144	0.0	4344	0.0	4544	0.0	4744	0.0
3748	0.0	3948	0.0	4148	0.0	4348	0.0	4548	0.0	4748	0.0
3752	0.0	3952	0.0	4152	0.0	4352	0.0	4552	0.0	4752	0.0
3756	0.0	3956	0.0	4156	0.0	4356	0.0	4556	0.0	4756	0.0
3760	0.0	3960	0.0	4160	0.0	4360	0.0	4560	0.0	4760	0.0
3764	0.0	3964	0.0	4164	0.0	4364	0.0	4564	0.0	4764	0.0
3768	0.0	3968	0.0	4168	0.0	4368	0.0	4568	0.0	4768	0.0
3772	0.0	3972	0.0	4172	0.0	4372	0.0	4572	0.0	4772	0.0
3776	0.0	3976	0.0	4176	0.0	4376	0.0	4576	0.0	4776	0.0
3780	0.0	3980	0.0	4180	0.0	4380	0.0	4580	0.0	4780	0.0
3784	0.0	3984	0.0	4184	0.0	4384	0.0	4584	0.0	4784	0.0
3788	0.0	3988	0.0	4188	0.0	4388	0.0	4588	0.0	4788	0.0
3792	0.0	3992	0.0	4192	0.0	4392	0.0	4592	0.0	4792	0.0
3796	0.0	3996	0.0	4196	0.0	4396	0.0	4596	0.0	4796	0.0
3800	0.0	4000	0.0	4200	0.0	4400	0.0	4600	0.0	4800	0.0

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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)
4804	0.0	5004	0.0	5204	0.0	5404	0.0	5604	0.0	5804	0.0
4808	0.0	5008	0.0	5208	0.0	5408	0.0	5608	0.0	5808	0.0
4812	0.0	5012	0.0	5212	0.0	5412	0.0	5612	0.0	5812	0.0
4816	0.0	5016	0.0	5216	0.0	5416	0.0	5616	0.0	5816	0.0
4820	0.0	5020	0.0	5220	0.0	5420	0.0	5620	0.0	5820	0.0
4824	0.0	5024	0.0	5224	0.0	5424	0.0	5624	0.0	5824	0.0
4828	0.0	5028	0.0	5228	0.0	5428	0.0	5628	0.0	5828	0.0
4832	0.0	5032	0.0	5232	0.0	5432	0.0	5632	0.0	5832	0.0
4836	0.0	5036	0.0	5236	0.0	5436	0.0	5636	0.0	5836	0.0
4840	0.0	5040	0.0	5240	0.0	5440	0.0	5640	0.0	5840	0.0
4844	0.0	5044	0.0	5244	0.0	5444	0.0	5644	0.0	5844	0.0
4848	0.0	5048	0.0	5248	0.0	5448	0.0	5648	0.0	5848	0.0
4852	0.0	5052	0.0	5252	0.0	5452	0.0	5652	0.0	5852	0.0
4856	0.0	5056	0.0	5256	0.0	5456	0.0	5656	0.0	5856	0.0
4860	0.0	5060	0.0	5260	0.0	5460	0.0	5660	0.0	5860	0.0
4864	0.0	5064	0.0	5264	0.0	5464	0.0	5664	0.0	5864	0.0
4868	0.0	5068	0.0	5268	0.0	5468	0.0	5668	0.0	5868	0.0
4872	0.0	5072	0.0	5272	0.0	5472	0.0	5672	0.0	5872	0.0
4876	0.0	5076	0.0	5276	0.0	5476	0.0	5676	0.0	5876	0.0
4880	0.0	5080	0.0	5280	0.0	5480	0.0	5680	0.0	5880	0.0
4884	0.0	5084	0.0	5284	0.0	5484	0.0	5684	0.0	5884	0.0
4888	0.0	5088	0.0	5288	0.0	5488	0.0	5688	0.0	5888	0.0
4892	0.0	5092	0.0	5292	0.0	5492	0.0	5692	0.0	5892	0.0
4896	0.0	5096	0.0	5296	0.0	5496	0.0	5696	0.0	5896	0.0
4900	0.0	5100	0.0	5300	0.0	5500	0.0	5700	0.0	5900	0.0
4904	0.0	5104	0.0	5304	0.0	5504	0.0	5704	0.0	5904	0.0
4908	0.0	5108	0.0	5308	0.0	5508	0.0	5708	0.0	5908	0.0
4912	0.0	5112	0.0	5312	0.0	5512	0.0	5712	0.0	5912	0.0
4916	0.0	5116	0.0	5316	0.0	5516	0.0	5716	0.0	5916	0.0
4920	0.0	5120	0.0	5320	0.0	5520	0.0	5720	0.0	5920	0.0
4924	0.0	5124	0.0	5324	0.0	5524	0.0	5724	0.0	5924	0.0
4928	0.0	5128	0.0	5328	0.0	5528	0.0	5728	0.0	5928	0.0
4932	0.0	5132	0.0	5332	0.0	5532	0.0	5732	0.0	5932	0.0
4936	0.0	5136	0.0	5336	0.0	5536	0.0	5736	0.0	5936	0.0
4940	0.0	5140	0.0	5340	0.0	5540	0.0	5740	0.0	5940	0.0
4944	0.0	5144	0.0	5344	0.0	5544	0.0	5744	0.0	5944	0.0
4948	0.0	5148	0.0	5348	0.0	5548	0.0	5748	0.0	5948	0.0
4952	0.0	5152	0.0	5352	0.0	5552	0.0	5752	0.0	5952	0.0
4956	0.0	5156	0.0	5356	0.0	5556	0.0	5756	0.0	5956	0.0
4960	0.0	5160	0.0	5360	0.0	5560	0.0	5760	0.0	5960	0.0
4964	0.0	5164	0.0	5364	0.0	5564	0.0	5764	0.0	5964	0.0
4968	0.0	5168	0.0	5368	0.0	5568	0.0	5768	0.0	5968	0.0
4972	0.0	5172	0.0	5372	0.0	5572	0.0	5772	0.0	5972	0.0
4976	0.0	5176	0.0	5376	0.0	5576	0.0	5776	0.0	5976	0.0
4980	0.0	5180	0.0	5380	0.0	5580	0.0	5780	0.0	5980	0.0
4984	0.0	5184	0.0	5384	0.0	5584	0.0	5784	0.0	5984	0.0
4988	0.0	5188	0.0	5388	0.0	5588	0.0	5788	0.0	5988	0.0
4992	0.0	5192	0.0	5392	0.0	5592	0.0	5792	0.0	5992	0.0
4996	0.0	5196	0.0	5396	0.0	5596	0.0	5796	0.0	5996	0.0
5000	0.0	5200	0.0	5400	0.0	5600	0.0	5800	0.0	6000	0.0

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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Leasure Center 1:100+1:10	
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Micro Drainage	Source Control 2017.1.2	

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)
6004	0.0	6008	0.0								

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Micro Drainage	Source Control 2017.1.2	

Model Details


Storage is Online Cover Level (m) 10.000

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	67.0
Membrane Percolation (mm/hr)	1000	Length (m)	67.0
Max Percolation (l/s)	1246.9	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	9.000	Membrane Depth (m)	0

Orifice Outflow Control


Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 9.000

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Summary of Results for Input Hydrograph


Storm Event	Max Level (m)	Max Depth (m)	Max Control (1/s)	Max Volume (m³)	Status
Input Hydrograph	9.954	0.954	2.0	2521.3	O K

Storm Event	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
Input Hydrograph	0.0	1148.7	5792

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Micro Drainage		Source Control 2017.1.2


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	0.2	408	3.0	808	3.3	1208	3.7	1608	5.7	2008	9.7
16	0.2	416	3.1	816	3.3	1216	3.8	1616	5.8	2016	9.7
24	0.2	424	3.1	824	3.3	1224	3.8	1624	6.1	2024	10.4
32	0.2	432	3.1	832	3.3	1232	3.8	1632	6.1	2032	10.4
40	0.2	440	3.1	840	3.3	1240	3.8	1640	6.1	2040	10.4
48	0.2	448	3.1	848	3.3	1248	3.8	1648	6.1	2048	10.4
56	0.2	456	3.1	856	3.3	1256	3.8	1656	6.1	2056	10.4
64	0.8	464	3.2	864	3.3	1264	3.8	1664	6.1	2064	10.4
72	1.0	472	3.2	872	3.3	1272	3.9	1672	6.2	2072	10.4
80	1.0	480	3.2	880	3.3	1280	4.0	1680	6.6	2080	11.0
88	1.0	488	3.2	888	3.3	1288	4.0	1688	6.6	2088	11.1
96	1.0	496	3.2	896	3.3	1296	4.0	1696	6.6	2096	11.1
104	1.0	504	3.2	904	3.3	1304	4.0	1704	6.6	2104	11.1
112	1.0	512	3.2	912	3.3	1312	4.0	1712	6.6	2112	11.1
120	1.3	520	3.2	920	3.3	1320	4.0	1720	6.6	2120	11.1
128	1.6	528	3.3	928	3.4	1328	4.1	1728	6.6	2128	11.1
136	1.6	536	3.3	936	3.4	1336	4.3	1736	7.2	2136	11.6
144	1.6	544	3.3	944	3.4	1344	4.3	1744	7.2	2144	11.9
152	1.6	552	3.3	952	3.4	1352	4.3	1752	7.2	2152	11.9
160	1.6	560	3.3	960	3.4	1360	4.3	1760	7.2	2160	11.9
168	1.6	568	3.3	968	3.4	1368	4.3	1768	7.2	2168	11.9
176	1.8	576	3.3	976	3.4	1376	4.3	1776	7.2	2176	11.9
184	2.0	584	3.3	984	3.4	1384	4.3	1784	7.2	2184	11.9
192	2.0	592	3.3	992	3.4	1392	4.5	1792	7.6	2192	12.2
200	2.0	600	3.3	1000	3.4	1400	4.5	1800	7.8	2200	12.6
208	2.0	608	3.3	1008	3.4	1408	4.5	1808	7.8	2208	12.6
216	2.0	616	3.3	1016	3.4	1416	4.5	1816	7.8	2216	12.6
224	2.0	624	3.3	1024	3.4	1424	4.5	1824	7.8	2224	12.6
232	2.1	632	3.3	1032	3.4	1432	4.5	1832	7.8	2232	12.6
240	2.4	640	3.3	1040	3.4	1440	4.5	1840	7.8	2240	12.6
248	2.4	648	3.3	1048	3.5	1448	4.9	1848	8.1	2248	12.8
256	2.4	656	3.3	1056	3.5	1456	4.9	1856	8.4	2256	13.4
264	2.4	664	3.3	1064	3.5	1464	4.9	1864	8.4	2264	13.4
272	2.4	672	3.3	1072	3.5	1472	4.9	1872	8.4	2272	13.4
280	2.4	680	3.3	1080	3.5	1480	4.9	1880	8.4	2280	13.4
288	2.4	688	3.3	1088	3.5	1488	4.9	1888	8.4	2288	13.4
296	2.7	696	3.4	1096	3.5	1496	4.9	1896	8.4	2296	13.4
304	2.7	704	3.4	1104	3.5	1504	5.2	1904	8.6	2304	13.4
312	2.7	712	3.4	1112	3.5	1512	5.2	1912	9.0	2312	14.1
320	2.7	720	3.4	1120	3.5	1520	5.2	1920	9.0	2320	14.1
328	2.7	728	3.4	1128	3.5	1528	5.2	1928	9.0	2328	14.1
336	2.7	736	3.4	1136	3.5	1536	5.2	1936	9.0	2336	14.1
344	2.7	744	3.4	1144	3.5	1544	5.2	1944	9.0	2344	14.1
352	2.9	752	3.3	1152	3.5	1552	5.2	1952	9.0	2352	14.1
360	3.0	760	3.3	1160	3.7	1560	5.5	1960	9.2	2360	14.1
368	3.0	768	3.3	1168	3.7	1568	5.7	1968	9.7	2368	14.7
376	3.0	776	3.3	1176	3.7	1576	5.7	1976	9.7	2376	14.8
384	3.0	784	3.3	1184	3.7	1584	5.7	1984	9.7	2384	14.8
392	3.0	792	3.3	1192	3.7	1592	5.7	1992	9.7	2392	14.8
400	3.0	800	3.3	1200	3.7	1600	5.7	2000	9.7	2400	14.8

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Date 17/12/2018 File DRAINAGE AREA B, PUBLIC...	Designed by SAH Checked by	
Micro Drainage		Source Control 2017.1.2


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	14.8	2808	18.8	3208	16.9	3608	11.9	4008	7.2	4408	4.3
2416	14.8	2816	18.8	3216	16.9	3616	11.9	4016	7.2	4416	4.3
2424	15.3	2824	18.8	3224	16.9	3624	11.9	4024	7.2	4424	4.3
2432	15.6	2832	19.0	3232	16.3	3632	11.6	4032	7.2	4432	4.3
2440	15.6	2840	19.0	3240	16.2	3640	11.1	4040	6.6	4440	4.1
2448	15.6	2848	19.0	3248	16.2	3648	11.1	4048	6.6	4448	4.0
2456	15.6	2856	19.0	3256	16.2	3656	11.1	4056	6.6	4456	4.0
2464	15.6	2864	19.0	3264	16.2	3664	11.1	4064	6.6	4464	4.0
2472	15.6	2872	19.0	3272	16.2	3672	11.1	4072	6.6	4472	4.0
2480	15.8	2880	19.0	3280	16.2	3680	11.1	4080	6.6	4480	4.0
2488	16.2	2888	19.0	3288	15.8	3688	11.0	4088	6.6	4488	4.0
2496	16.2	2896	19.0	3296	15.6	3696	10.4	4096	6.2	4496	3.9
2504	16.2	2904	19.0	3304	15.6	3704	10.4	4104	6.1	4504	3.8
2512	16.2	2912	19.0	3312	15.6	3712	10.4	4112	6.1	4512	3.8
2520	16.2	2920	19.0	3320	15.6	3720	10.4	4120	6.1	4520	3.8
2528	16.2	2928	19.0	3328	15.6	3728	10.4	4128	6.1	4528	3.8
2536	16.3	2936	19.0	3336	15.6	3736	10.4	4136	6.1	4536	3.8
2544	16.9	2944	18.8	3344	15.3	3744	10.4	4144	6.1	4544	3.8
2552	16.9	2952	18.8	3352	14.8	3752	9.7	4152	5.8	4552	3.8
2560	16.9	2960	18.8	3360	14.8	3760	9.7	4160	5.7	4560	3.7
2568	16.9	2968	18.8	3368	14.8	3768	9.7	4168	5.7	4568	3.7
2576	16.9	2976	18.8	3376	14.8	3776	9.7	4176	5.7	4576	3.7
2584	16.9	2984	18.8	3384	14.8	3784	9.7	4184	5.7	4584	3.7
2592	16.9	2992	18.8	3392	14.8	3792	9.7	4192	5.7	4592	3.7
2600	17.4	3000	18.5	3400	14.7	3800	9.7	4200	5.7	4600	3.7
2608	17.4	3008	18.4	3408	14.1	3808	9.2	4208	5.5	4608	3.7
2616	17.4	3016	18.4	3416	14.1	3816	9.0	4216	5.2	4616	3.5
2624	17.4	3024	18.4	3424	14.1	3824	9.0	4224	5.2	4624	3.5
2632	17.4	3032	18.4	3432	14.1	3832	9.0	4232	5.2	4632	3.5
2640	17.4	3040	18.4	3440	14.1	3840	9.0	4240	5.2	4640	3.5
2648	17.4	3048	18.4	3448	14.1	3848	9.0	4248	5.2	4648	3.5
2656	17.8	3056	18.2	3456	14.1	3856	9.0	4256	5.2	4656	3.5
2664	17.9	3064	17.9	3464	13.4	3864	8.6	4264	5.2	4664	3.5
2672	17.9	3072	17.9	3472	13.4	3872	8.4	4272	4.9	4672	3.5
2680	17.9	3080	17.9	3480	13.4	3880	8.4	4280	4.9	4680	3.5
2688	17.9	3088	17.9	3488	13.4	3888	8.4	4288	4.9	4688	3.5
2696	17.9	3096	17.9	3496	13.4	3896	8.4	4296	4.9	4696	3.5
2704	17.9	3104	17.9	3504	13.4	3904	8.4	4304	4.9	4704	3.5
2712	18.2	3112	17.8	3512	13.4	3912	8.4	4312	4.9	4712	3.5
2720	18.4	3120	17.4	3520	12.8	3920	8.1	4320	4.9	4720	3.5
2728	18.4	3128	17.4	3528	12.6	3928	7.8	4328	4.5	4728	3.4
2736	18.4	3136	17.4	3536	12.6	3936	7.8	4336	4.5	4736	3.4
2744	18.4	3144	17.4	3544	12.6	3944	7.8	4344	4.5	4744	3.4
2752	18.4	3152	17.4	3552	12.6	3952	7.8	4352	4.5	4752	3.4
2760	18.4	3160	17.4	3560	12.6	3960	7.8	4360	4.5	4760	3.4
2768	18.5	3168	17.4	3568	12.6	3968	7.8	4368	4.5	4768	3.4
2776	18.8	3176	16.9	3576	12.2	3976	7.6	4376	4.5	4776	3.4
2784	18.8	3184	16.9	3584	11.9	3984	7.2	4384	4.3	4784	3.4
2792	18.8	3192	16.9	3592	11.9	3992	7.2	4392	4.3	4792	3.4
2800	18.8	3200	16.9	3600	11.9	4000	7.2	4400	4.3	4800	3.4

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Micro Drainage	Source Control 2017.1.2	


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	3.4	5208	3.3	5608	1.6	6008	0.0	6408	0.0	6808	0.0
4816	3.4	5216	3.3	5616	1.6	6016	0.0	6416	0.0	6816	0.0
4824	3.4	5224	3.3	5624	1.6	6024	0.0	6424	0.0	6824	0.0
4832	3.4	5232	3.3	5632	1.6	6032	0.0	6432	0.0	6832	0.0
4840	3.4	5240	3.3	5640	1.6	6040	0.0	6440	0.0	6840	0.0
4848	3.3	5248	3.2	5648	1.3	6048	0.0	6448	0.0	6848	0.0
4856	3.3	5256	3.2	5656	1.0	6056	0.0	6456	0.0	6856	0.0
4864	3.3	5264	3.2	5664	1.0	6064	0.0	6464	0.0	6864	0.0
4872	3.3	5272	3.2	5672	1.0	6072	0.0	6472	0.0	6872	0.0
4880	3.3	5280	3.2	5680	1.0	6080	0.0	6480	0.0	6880	0.0
4888	3.3	5288	3.2	5688	1.0	6088	0.0	6488	0.0	6888	0.0
4896	3.3	5296	3.2	5696	1.0	6096	0.0	6496	0.0	6896	0.0
4904	3.3	5304	3.2	5704	0.8	6104	0.0	6504	0.0	6904	0.0
4912	3.3	5312	3.1	5712	0.8	6112	0.0	6512	0.0	6912	0.0
4920	3.3	5320	3.1	5720	0.2	6120	0.0	6520	0.0	6920	0.0
4928	3.3	5328	3.1	5728	19.4	6128	0.0	6528	0.0	6928	0.0
4936	3.3	5336	3.1	5736	46.4	6136	0.0	6536	0.0	6936	0.0
4944	3.3	5344	3.1	5744	67.3	6144	0.0	6544	0.0	6944	0.0
4952	3.3	5352	3.1	5752	193.5	6152	0.0	6552	0.0	6952	0.0
4960	3.3	5360	3.0	5760	364.8	6160	0.0	6560	0.0	6960	0.0
4968	3.3	5368	3.0	5768	100.4	6168	0.0	6568	0.0	6968	0.0
4976	3.3	5376	3.0	5776	54.3	6176	0.0	6576	0.0	6976	0.0
4984	3.3	5384	3.0	5784	41.9	6184	0.0	6584	0.0	6984	0.0
4992	3.3	5392	3.0	5792	0.0	6192	0.0	6592	0.0	6992	0.0
5000	3.3	5400	3.0	5800	0.0	6200	0.0	6600	0.0	7000	0.0
5008	3.3	5408	3.0	5808	0.0	6208	0.0	6608	0.0	7008	0.0
5016	3.3	5416	2.9	5816	0.0	6216	0.0	6616	0.0	7016	0.0
5024	3.4	5424	2.7	5824	0.0	6224	0.0	6624	0.0	7024	0.0
5032	3.4	5432	2.7	5832	0.0	6232	0.0	6632	0.0	7032	0.0
5040	3.4	5440	2.7	5840	0.0	6240	0.0	6640	0.0	7040	0.0
5048	3.4	5448	2.7	5848	0.0	6248	0.0	6648	0.0	7048	0.0
5056	3.4	5456	2.7	5856	0.0	6256	0.0	6656	0.0	7056	0.0
5064	3.4	5464	2.7	5864	0.0	6264	0.0	6664	0.0	7064	0.0
5072	3.4	5472	2.7	5872	0.0	6272	0.0	6672	0.0	7072	0.0
5080	3.4	5480	2.4	5880	0.0	6280	0.0	6680	0.0	7080	0.0
5088	3.4	5488	2.4	5888	0.0	6288	0.0	6688	0.0	7088	0.0
5096	3.4	5496	2.4	5896	0.0	6296	0.0	6696	0.0	7096	0.0
5104	3.4	5504	2.4	5904	0.0	6304	0.0	6704	0.0	7104	0.0
5112	3.4	5512	2.4	5912	0.0	6312	0.0	6712	0.0	7112	0.0
5120	3.4	5520	2.4	5920	0.0	6320	0.0	6720	0.0	7120	0.0
5128	3.3	5528	2.4	5928	0.0	6328	0.0	6728	0.0	7128	0.0
5136	3.3	5536	2.1	5936	0.0	6336	0.0	6736	0.0	7136	0.0
5144	3.3	5544	2.0	5944	0.0	6344	0.0	6744	0.0	7144	0.0
5152	3.3	5552	2.0	5952	0.0	6352	0.0	6752	0.0	7152	0.0
5160	3.3	5560	2.0	5960	0.0	6360	0.0	6760	0.0	7160	0.0
5168	3.3	5568	2.0	5968	0.0	6368	0.0	6768	0.0	7168	0.0
5176	3.3	5576	2.0	5976	0.0	6376	0.0	6776	0.0	7176	0.0
5184	3.3	5584	2.0	5984	0.0	6384	0.0	6784	0.0	7184	0.0
5192	3.3	5592	1.8	5992	0.0	6392	0.0	6792	0.0	7192	0.0
5200	3.3	5600	1.6	6000	0.0	6400	0.0	6800	0.0	7200	0.0

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Micro Drainage		Source Control 2017.1.2


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 2017.1.2

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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Model Details

Storage is Online Cover Level (m) 10.000

Tank or Pond Structure

Invert Level (m) 9.000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	1200.0	0.500	2500.0	1.000	5000.0


Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-CHE-0064-2000-1000-2000
Design Head (m)	1.000
Design Flow (l/s)	2.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	No
Diameter (mm)	64
Invert Level (m)	9.000
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	2.0
Flush-Flo™	0.156	1.7
Kick-Flo®	0.223	1.0
Mean Flow over Head Range	-	1.4

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	1.3	1.200	2.2	3.000	3.4	7.000	5.2
0.200	1.1	1.400	2.4	3.500	3.7	7.500	5.4
0.300	1.1	1.600	2.5	4.000	4.0	8.000	5.6
0.400	1.3	1.800	2.7	4.500	4.2	8.500	5.7
0.500	1.4	2.000	2.8	5.000	4.4	9.000	5.9
0.600	1.6	2.200	2.9	5.500	4.6	9.500	6.0
0.800	1.8	2.400	3.1	6.000	4.8		
1.000	2.0	2.600	3.2	6.500	5.0		

Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Private East 1:100+1:10	
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Micro Drainage	Source Control 2017.1.2
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Summary of Results for Input Hydrograph

Half Drain Time : 7381 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	9.400	1.400	0.0	1.9	1.9	1463.4	O K


Storm Event	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
Input Hydrograph	0.0	1049.5	2948

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Micro Drainage		Source Control 2017.1.2




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)
4	0.3	204	3.3	404	3.7	604	4.0	804	6.2	1004	10.6
8	0.3	208	3.4	408	3.7	608	4.2	808	6.4	1008	10.6
12	0.3	212	3.4	412	3.7	612	4.2	812	6.7	1012	11.4
16	0.3	216	3.4	416	3.7	616	4.2	816	6.7	1016	11.4
20	0.3	220	3.4	420	3.7	620	4.2	820	6.7	1020	11.4
24	0.3	224	3.4	424	3.7	624	4.2	824	6.7	1024	11.4
28	0.3	228	3.4	428	3.7	628	4.2	828	6.7	1028	11.4
32	0.9	232	3.5	432	3.7	632	4.2	832	6.7	1032	11.4
36	1.1	236	3.5	436	3.7	636	4.3	836	6.8	1036	11.4
40	1.1	240	3.5	440	3.7	640	4.4	840	7.2	1040	12.0
44	1.1	244	3.5	444	3.7	644	4.4	844	7.2	1044	12.2
48	1.1	248	3.5	448	3.7	648	4.4	848	7.2	1048	12.2
52	1.1	252	3.5	452	3.7	652	4.4	852	7.2	1052	12.2
56	1.1	256	3.5	456	3.7	656	4.4	856	7.2	1056	12.2
60	1.4	260	3.5	460	3.7	660	4.4	860	7.2	1060	12.2
64	1.7	264	3.6	464	3.7	664	4.5	864	7.2	1064	12.2
68	1.7	268	3.6	468	3.7	668	4.7	868	7.8	1068	12.7
72	1.7	272	3.6	472	3.7	672	4.7	872	7.8	1072	13.0
76	1.7	276	3.6	476	3.7	676	4.7	876	7.8	1076	13.0
80	1.7	280	3.6	480	3.7	680	4.7	880	7.8	1080	13.0
84	1.7	284	3.6	484	3.7	684	4.7	884	7.8	1084	13.0
88	1.9	288	3.6	488	3.7	688	4.7	888	7.8	1088	13.0
92	2.2	292	3.6	492	3.7	692	4.7	892	7.8	1092	13.0
96	2.2	296	3.6	496	3.7	696	5.0	896	8.4	1096	13.3
100	2.2	300	3.6	500	3.7	700	5.0	900	8.5	1100	13.8
104	2.2	304	3.6	504	3.7	704	5.0	904	8.5	1104	13.8
108	2.2	308	3.6	508	3.7	708	5.0	908	8.5	1108	13.8
112	2.2	312	3.6	512	3.7	712	5.0	912	8.5	1112	13.8
116	2.3	316	3.6	516	3.7	716	5.0	916	8.5	1116	13.8
120	2.7	320	3.7	520	3.7	720	5.0	920	8.5	1120	13.8
124	2.7	324	3.7	524	3.8	724	5.3	924	8.9	1124	14.0
128	2.7	328	3.7	528	3.8	728	5.3	928	9.2	1128	14.6
132	2.7	332	3.7	532	3.8	732	5.3	932	9.2	1132	14.6
136	2.7	336	3.7	536	3.8	736	5.3	936	9.2	1136	14.6
140	2.7	340	3.7	540	3.8	740	5.3	940	9.2	1140	14.6
144	2.7	344	3.7	544	3.8	744	5.3	944	9.2	1144	14.6
148	3.0	348	3.7	548	3.8	748	5.3	948	9.2	1148	14.6
152	3.0	352	3.7	552	3.9	752	5.7	952	9.4	1152	14.6
156	3.0	356	3.7	556	3.9	756	5.7	956	9.9	1156	15.4
160	3.0	360	3.7	560	3.9	760	5.7	960	9.9	1160	15.4
164	3.0	364	3.7	564	3.9	764	5.7	964	9.9	1164	15.4
168	3.0	368	3.7	568	3.9	768	5.7	968	9.9	1168	15.4
172	3.0	372	3.7	572	3.9	772	5.7	972	9.9	1172	15.4
176	3.2	376	3.7	576	3.9	776	5.7	976	9.9	1176	15.4
180	3.2	380	3.7	580	4.0	780	6.0	980	10.0	1180	15.4
184	3.2	384	3.7	584	4.0	784	6.2	984	10.6	1184	16.1
188	3.2	388	3.7	588	4.0	788	6.2	988	10.6	1188	16.2
192	3.2	392	3.7	592	4.0	792	6.2	992	10.6	1192	16.2
196	3.2	396	3.7	596	4.0	796	6.2	996	10.6	1196	16.2
200	3.2	400	3.7	600	4.0	800	6.2	1000	10.6	1200	16.2

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Micro Drainage		Source Control 2017.1.2


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)
1204	16.2	1404	20.5	1604	18.4	1804	13.0	2004	7.8	2204	4.7
1208	16.2	1408	20.5	1608	18.4	1808	13.0	2008	7.8	2208	4.7
1212	16.7	1412	20.6	1612	18.4	1812	13.0	2012	7.8	2212	4.7
1216	17.0	1416	20.8	1616	17.9	1816	12.7	2016	7.8	2216	4.7
1220	17.0	1420	20.8	1620	17.7	1820	12.2	2020	7.2	2220	4.5
1224	17.0	1424	20.8	1624	17.7	1824	12.2	2024	7.2	2224	4.4
1228	17.0	1428	20.8	1628	17.7	1828	12.2	2028	7.2	2228	4.4
1232	17.0	1432	20.8	1632	17.7	1832	12.2	2032	7.2	2232	4.4
1236	17.0	1436	20.8	1636	17.7	1836	12.2	2036	7.2	2236	4.4
1240	17.3	1440	20.8	1640	17.7	1840	12.2	2040	7.2	2240	4.4
1244	17.7	1444	20.8	1644	17.3	1844	12.0	2044	7.2	2244	4.4
1248	17.7	1448	20.8	1648	17.0	1848	11.4	2048	6.8	2248	4.3
1252	17.7	1452	20.8	1652	17.0	1852	11.4	2052	6.7	2252	4.2
1256	17.7	1456	20.8	1656	17.0	1856	11.4	2056	6.7	2256	4.2
1260	17.7	1460	20.8	1660	17.0	1860	11.4	2060	6.7	2260	4.2
1264	17.7	1464	20.8	1664	17.0	1864	11.4	2064	6.7	2264	4.2
1268	17.9	1468	20.8	1668	17.0	1868	11.4	2068	6.7	2268	4.2
1272	18.4	1472	20.6	1672	16.7	1872	11.4	2072	6.7	2272	4.2
1276	18.4	1476	20.5	1676	16.2	1876	10.6	2076	6.4	2276	4.2
1280	18.4	1480	20.5	1680	16.2	1880	10.6	2080	6.2	2280	4.0
1284	18.4	1484	20.5	1684	16.2	1884	10.6	2084	6.2	2284	4.0
1288	18.4	1488	20.5	1688	16.2	1888	10.6	2088	6.2	2288	4.0
1292	18.4	1492	20.5	1692	16.2	1892	10.6	2092	6.2	2292	4.0
1296	18.4	1496	20.5	1696	16.2	1896	10.6	2096	6.2	2296	4.0
1300	19.1	1500	20.3	1700	16.1	1900	10.6	2100	6.2	2300	4.0
1304	19.1	1504	20.1	1704	15.4	1904	10.0	2104	6.0	2304	4.0
1308	19.1	1508	20.1	1708	15.4	1908	9.9	2108	5.7	2308	3.9
1312	19.1	1512	20.1	1712	15.4	1912	9.9	2112	5.7	2312	3.9
1316	19.1	1516	20.1	1716	15.4	1916	9.9	2116	5.7	2316	3.9
1320	19.1	1520	20.1	1720	15.4	1920	9.9	2120	5.7	2320	3.9
1324	19.1	1524	20.1	1724	15.4	1924	9.9	2124	5.7	2324	3.9
1328	19.5	1528	19.9	1728	15.4	1928	9.9	2128	5.7	2328	3.9
1332	19.6	1532	19.6	1732	14.6	1932	9.4	2132	5.7	2332	3.9
1336	19.6	1536	19.6	1736	14.6	1936	9.2	2136	5.3	2336	3.8
1340	19.6	1540	19.6	1740	14.6	1940	9.2	2140	5.3	2340	3.8
1344	19.6	1544	19.6	1744	14.6	1944	9.2	2144	5.3	2344	3.8
1348	19.6	1548	19.6	1748	14.6	1948	9.2	2148	5.3	2348	3.8
1352	19.6	1552	19.6	1752	14.6	1952	9.2	2152	5.3	2352	3.8
1356	19.9	1556	19.5	1756	14.6	1956	9.2	2156	5.3	2356	3.8
1360	20.1	1560	19.1	1760	14.0	1960	8.9	2160	5.3	2360	3.8
1364	20.1	1564	19.1	1764	13.8	1964	8.5	2164	5.0	2364	3.7
1368	20.1	1568	19.1	1768	13.8	1968	8.5	2168	5.0	2368	3.7
1372	20.1	1572	19.1	1772	13.8	1972	8.5	2172	5.0	2372	3.7
1376	20.1	1576	19.1	1776	13.8	1976	8.5	2176	5.0	2376	3.7
1380	20.1	1580	19.1	1780	13.8	1980	8.5	2180	5.0	2380	3.7
1384	20.3	1584	19.1	1784	13.8	1984	8.5	2184	5.0	2384	3.7
1388	20.5	1588	18.4	1788	13.3	1988	8.4	2188	5.0	2388	3.7
1392	20.5	1592	18.4	1792	13.0	1992	7.8	2192	4.7	2392	3.7
1396	20.5	1596	18.4	1796	13.0	1996	7.8	2196	4.7	2396	3.7
1400	20.5	1600	18.4	1800	13.0	2000	7.8	2200	4.7	2400	3.7

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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)
2404	3.7	2604	3.6	2804	1.7	3004	0.0	3204	0.0	3404	0.0
2408	3.7	2608	3.6	2808	1.7	3008	0.0	3208	0.0	3408	0.0
2412	3.7	2612	3.6	2812	1.7	3012	0.0	3212	0.0	3412	0.0
2416	3.7	2616	3.6	2816	1.7	3016	0.0	3216	0.0	3416	0.0
2420	3.7	2620	3.6	2820	1.7	3020	0.0	3220	0.0	3420	0.0
2424	3.7	2624	3.5	2824	1.4	3024	0.0	3224	0.0	3424	0.0
2428	3.7	2628	3.5	2828	1.1	3028	0.0	3228	0.0	3428	0.0
2432	3.7	2632	3.5	2832	1.1	3032	0.0	3232	0.0	3432	0.0
2436	3.7	2636	3.5	2836	1.1	3036	0.0	3236	0.0	3436	0.0
2440	3.7	2640	3.5	2840	1.1	3040	0.0	3240	0.0	3440	0.0
2444	3.7	2644	3.5	2844	1.1	3044	0.0	3244	0.0	3444	0.0
2448	3.7	2648	3.5	2848	1.1	3048	0.0	3248	0.0	3448	0.0
2452	3.7	2652	3.5	2852	0.9	3052	0.0	3252	0.0	3452	0.0
2456	3.7	2656	3.4	2856	0.3	3056	0.0	3256	0.0	3456	0.0
2460	3.7	2660	3.4	2860	0.3	3060	0.0	3260	0.0	3460	0.0
2464	3.7	2664	3.4	2864	0.3	3064	0.0	3264	0.0	3464	0.0
2468	3.7	2668	3.4	2868	0.3	3068	0.0	3268	0.0	3468	0.0
2472	3.7	2672	3.4	2872	0.3	3072	0.0	3272	0.0	3472	0.0
2476	3.7	2676	3.4	2876	0.3	3076	0.0	3276	0.0	3476	0.0
2480	3.7	2680	3.3	2880	0.3	3080	0.0	3280	0.0	3480	0.0
2484	3.7	2684	3.2	2884	12.0	3084	0.0	3284	0.0	3484	0.0
2488	3.7	2688	3.2	2888	25.8	3088	0.0	3288	0.0	3488	0.0
2492	3.7	2692	3.2	2892	28.6	3092	0.0	3292	0.0	3492	0.0
2496	3.7	2696	3.2	2896	33.5	3096	0.0	3296	0.0	3496	0.0
2500	3.7	2700	3.2	2900	41.5	3100	0.0	3300	0.0	3500	0.0
2504	3.7	2704	3.2	2904	62.0	3104	0.0	3304	0.0	3504	0.0
2508	3.7	2708	3.2	2908	119.5	3108	0.0	3308	0.0	3508	0.0
2512	3.7	2712	3.0	2912	225.2	3112	0.0	3312	0.0	3512	0.0
2516	3.7	2716	3.0	2916	225.2	3116	0.0	3316	0.0	3516	0.0
2520	3.7	2720	3.0	2920	119.5	3120	0.0	3320	0.0	3520	0.0
2524	3.7	2724	3.0	2924	62.0	3124	0.0	3324	0.0	3524	0.0
2528	3.7	2728	3.0	2928	41.5	3128	0.0	3328	0.0	3528	0.0
2532	3.7	2732	3.0	2932	33.5	3132	0.0	3332	0.0	3532	0.0
2536	3.7	2736	3.0	2936	28.6	3136	0.0	3336	0.0	3536	0.0
2540	3.7	2740	2.7	2940	25.8	3140	0.0	3340	0.0	3540	0.0
2544	3.7	2744	2.7	2944	12.0	3144	0.0	3344	0.0	3544	0.0
2548	3.7	2748	2.7	2948	0.0	3148	0.0	3348	0.0	3548	0.0
2552	3.7	2752	2.7	2952	0.0	3152	0.0	3352	0.0	3552	0.0
2556	3.7	2756	2.7	2956	0.0	3156	0.0	3356	0.0	3556	0.0
2560	3.7	2760	2.7	2960	0.0	3160	0.0	3360	0.0	3560	0.0
2564	3.7	2764	2.7	2964	0.0	3164	0.0	3364	0.0	3564	0.0
2568	3.6	2768	2.3	2968	0.0	3168	0.0	3368	0.0	3568	0.0
2572	3.6	2772	2.2	2972	0.0	3172	0.0	3372	0.0	3572	0.0
2576	3.6	2776	2.2	2976	0.0	3176	0.0	3376	0.0	3576	0.0
2580	3.6	2780	2.2	2980	0.0	3180	0.0	3380	0.0	3580	0.0
2584	3.6	2784	2.2	2984	0.0	3184	0.0	3384	0.0	3584	0.0
2588	3.6	2788	2.2	2988	0.0	3188	0.0	3388	0.0	3588	0.0
2592	3.6	2792	2.2	2992	0.0	3192	0.0	3392	0.0	3592	0.0
2596	3.6	2796	1.9	2996	0.0	3196	0.0	3396	0.0	3596	0.0
2600	3.6	2800	1.7	3000	0.0	3200	0.0	3400	0.0	3600	0.0

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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)
3604	0.0	3804	0.0	4004	0.0	4204	0.0	4404	0.0	4604	0.0
3608	0.0	3808	0.0	4008	0.0	4208	0.0	4408	0.0	4608	0.0
3612	0.0	3812	0.0	4012	0.0	4212	0.0	4412	0.0	4612	0.0
3616	0.0	3816	0.0	4016	0.0	4216	0.0	4416	0.0	4616	0.0
3620	0.0	3820	0.0	4020	0.0	4220	0.0	4420	0.0	4620	0.0
3624	0.0	3824	0.0	4024	0.0	4224	0.0	4424	0.0	4624	0.0
3628	0.0	3828	0.0	4028	0.0	4228	0.0	4428	0.0	4628	0.0
3632	0.0	3832	0.0	4032	0.0	4232	0.0	4432	0.0	4632	0.0
3636	0.0	3836	0.0	4036	0.0	4236	0.0	4436	0.0	4636	0.0
3640	0.0	3840	0.0	4040	0.0	4240	0.0	4440	0.0	4640	0.0
3644	0.0	3844	0.0	4044	0.0	4244	0.0	4444	0.0	4644	0.0
3648	0.0	3848	0.0	4048	0.0	4248	0.0	4448	0.0	4648	0.0
3652	0.0	3852	0.0	4052	0.0	4252	0.0	4452	0.0	4652	0.0
3656	0.0	3856	0.0	4056	0.0	4256	0.0	4456	0.0	4656	0.0
3660	0.0	3860	0.0	4060	0.0	4260	0.0	4460	0.0	4660	0.0
3664	0.0	3864	0.0	4064	0.0	4264	0.0	4464	0.0	4664	0.0
3668	0.0	3868	0.0	4068	0.0	4268	0.0	4468	0.0	4668	0.0
3672	0.0	3872	0.0	4072	0.0	4272	0.0	4472	0.0	4672	0.0
3676	0.0	3876	0.0	4076	0.0	4276	0.0	4476	0.0	4676	0.0
3680	0.0	3880	0.0	4080	0.0	4280	0.0	4480	0.0	4680	0.0
3684	0.0	3884	0.0	4084	0.0	4284	0.0	4484	0.0	4684	0.0
3688	0.0	3888	0.0	4088	0.0	4288	0.0	4488	0.0	4688	0.0
3692	0.0	3892	0.0	4092	0.0	4292	0.0	4492	0.0	4692	0.0
3696	0.0	3896	0.0	4096	0.0	4296	0.0	4496	0.0	4696	0.0
3700	0.0	3900	0.0	4100	0.0	4300	0.0	4500	0.0	4700	0.0
3704	0.0	3904	0.0	4104	0.0	4304	0.0	4504	0.0	4704	0.0
3708	0.0	3908	0.0	4108	0.0	4308	0.0	4508	0.0	4708	0.0
3712	0.0	3912	0.0	4112	0.0	4312	0.0	4512	0.0	4712	0.0
3716	0.0	3916	0.0	4116	0.0	4316	0.0	4516	0.0	4716	0.0
3720	0.0	3920	0.0	4120	0.0	4320	0.0	4520	0.0	4720	0.0
3724	0.0	3924	0.0	4124	0.0	4324	0.0	4524	0.0	4724	0.0
3728	0.0	3928	0.0	4128	0.0	4328	0.0	4528	0.0	4728	0.0
3732	0.0	3932	0.0	4132	0.0	4332	0.0	4532	0.0	4732	0.0
3736	0.0	3936	0.0	4136	0.0	4336	0.0	4536	0.0	4736	0.0
3740	0.0	3940	0.0	4140	0.0	4340	0.0	4540	0.0	4740	0.0
3744	0.0	3944	0.0	4144	0.0	4344	0.0	4544	0.0	4744	0.0
3748	0.0	3948	0.0	4148	0.0	4348	0.0	4548	0.0	4748	0.0
3752	0.0	3952	0.0	4152	0.0	4352	0.0	4552	0.0	4752	0.0
3756	0.0	3956	0.0	4156	0.0	4356	0.0	4556	0.0	4756	0.0
3760	0.0	3960	0.0	4160	0.0	4360	0.0	4560	0.0	4760	0.0
3764	0.0	3964	0.0	4164	0.0	4364	0.0	4564	0.0	4764	0.0
3768	0.0	3968	0.0	4168	0.0	4368	0.0	4568	0.0	4768	0.0
3772	0.0	3972	0.0	4172	0.0	4372	0.0	4572	0.0	4772	0.0
3776	0.0	3976	0.0	4176	0.0	4376	0.0	4576	0.0	4776	0.0
3780	0.0	3980	0.0	4180	0.0	4380	0.0	4580	0.0	4780	0.0
3784	0.0	3984	0.0	4184	0.0	4384	0.0	4584	0.0	4784	0.0
3788	0.0	3988	0.0	4188	0.0	4388	0.0	4588	0.0	4788	0.0
3792	0.0	3992	0.0	4192	0.0	4392	0.0	4592	0.0	4792	0.0
3796	0.0	3996	0.0	4196	0.0	4396	0.0	4596	0.0	4796	0.0
3800	0.0	4000	0.0	4200	0.0	4400	0.0	4600	0.0	4800	0.0

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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)
4804	0.0	5004	0.0	5204	0.0	5404	0.0	5604	0.0	5804	0.0
4808	0.0	5008	0.0	5208	0.0	5408	0.0	5608	0.0	5808	0.0
4812	0.0	5012	0.0	5212	0.0	5412	0.0	5612	0.0	5812	0.0
4816	0.0	5016	0.0	5216	0.0	5416	0.0	5616	0.0	5816	0.0
4820	0.0	5020	0.0	5220	0.0	5420	0.0	5620	0.0	5820	0.0
4824	0.0	5024	0.0	5224	0.0	5424	0.0	5624	0.0	5824	0.0
4828	0.0	5028	0.0	5228	0.0	5428	0.0	5628	0.0	5828	0.0
4832	0.0	5032	0.0	5232	0.0	5432	0.0	5632	0.0	5832	0.0
4836	0.0	5036	0.0	5236	0.0	5436	0.0	5636	0.0	5836	0.0
4840	0.0	5040	0.0	5240	0.0	5440	0.0	5640	0.0	5840	0.0
4844	0.0	5044	0.0	5244	0.0	5444	0.0	5644	0.0	5844	0.0
4848	0.0	5048	0.0	5248	0.0	5448	0.0	5648	0.0	5848	0.0
4852	0.0	5052	0.0	5252	0.0	5452	0.0	5652	0.0	5852	0.0
4856	0.0	5056	0.0	5256	0.0	5456	0.0	5656	0.0	5856	0.0
4860	0.0	5060	0.0	5260	0.0	5460	0.0	5660	0.0	5860	0.0
4864	0.0	5064	0.0	5264	0.0	5464	0.0	5664	0.0	5864	0.0
4868	0.0	5068	0.0	5268	0.0	5468	0.0	5668	0.0	5868	0.0
4872	0.0	5072	0.0	5272	0.0	5472	0.0	5672	0.0	5872	0.0
4876	0.0	5076	0.0	5276	0.0	5476	0.0	5676	0.0	5876	0.0
4880	0.0	5080	0.0	5280	0.0	5480	0.0	5680	0.0	5880	0.0
4884	0.0	5084	0.0	5284	0.0	5484	0.0	5684	0.0	5884	0.0
4888	0.0	5088	0.0	5288	0.0	5488	0.0	5688	0.0	5888	0.0
4892	0.0	5092	0.0	5292	0.0	5492	0.0	5692	0.0	5892	0.0
4896	0.0	5096	0.0	5296	0.0	5496	0.0	5696	0.0	5896	0.0
4900	0.0	5100	0.0	5300	0.0	5500	0.0	5700	0.0	5900	0.0
4904	0.0	5104	0.0	5304	0.0	5504	0.0	5704	0.0	5904	0.0
4908	0.0	5108	0.0	5308	0.0	5508	0.0	5708	0.0	5908	0.0
4912	0.0	5112	0.0	5312	0.0	5512	0.0	5712	0.0	5912	0.0
4916	0.0	5116	0.0	5316	0.0	5516	0.0	5716	0.0	5916	0.0
4920	0.0	5120	0.0	5320	0.0	5520	0.0	5720	0.0	5920	0.0
4924	0.0	5124	0.0	5324	0.0	5524	0.0	5724	0.0	5924	0.0
4928	0.0	5128	0.0	5328	0.0	5528	0.0	5728	0.0	5928	0.0
4932	0.0	5132	0.0	5332	0.0	5532	0.0	5732	0.0	5932	0.0
4936	0.0	5136	0.0	5336	0.0	5536	0.0	5736	0.0	5936	0.0
4940	0.0	5140	0.0	5340	0.0	5540	0.0	5740	0.0	5940	0.0
4944	0.0	5144	0.0	5344	0.0	5544	0.0	5744	0.0	5944	0.0
4948	0.0	5148	0.0	5348	0.0	5548	0.0	5748	0.0	5948	0.0
4952	0.0	5152	0.0	5352	0.0	5552	0.0	5752	0.0	5952	0.0
4956	0.0	5156	0.0	5356	0.0	5556	0.0	5756	0.0	5956	0.0
4960	0.0	5160	0.0	5360	0.0	5560	0.0	5760	0.0	5960	0.0
4964	0.0	5164	0.0	5364	0.0	5564	0.0	5764	0.0	5964	0.0
4968	0.0	5168	0.0	5368	0.0	5568	0.0	5768	0.0	5968	0.0
4972	0.0	5172	0.0	5372	0.0	5572	0.0	5772	0.0	5972	0.0
4976	0.0	5176	0.0	5376	0.0	5576	0.0	5776	0.0	5976	0.0
4980	0.0	5180	0.0	5380	0.0	5580	0.0	5780	0.0	5980	0.0
4984	0.0	5184	0.0	5384	0.0	5584	0.0	5784	0.0	5984	0.0
4988	0.0	5188	0.0	5388	0.0	5588	0.0	5788	0.0	5988	0.0
4992	0.0	5192	0.0	5392	0.0	5592	0.0	5792	0.0	5992	0.0
4996	0.0	5196	0.0	5396	0.0	5596	0.0	5796	0.0	5996	0.0
5000	0.0	5200	0.0	5400	0.0	5600	0.0	5800	0.0	6000	0.0

Unit 6 - Barham Business Park
 Elham Valley Road
 Barham CT4 6DQ

Princes Parade
 Private East
 1:100+1:10



Date 17/12/2018
 File DRAINAGE AREA C, PRIVAT...

Designed by SAH
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Micro Drainage Source Control 2017.1.2

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)
6004	0.0	6204	0.0	6404	0.0	6604	0.0	6804	0.0	7004	0.0
6008	0.0	6208	0.0	6408	0.0	6608	0.0	6808	0.0	7008	0.0
6012	0.0	6212	0.0	6412	0.0	6612	0.0	6812	0.0	7012	0.0
6016	0.0	6216	0.0	6416	0.0	6616	0.0	6816	0.0	7016	0.0
6020	0.0	6220	0.0	6420	0.0	6620	0.0	6820	0.0	7020	0.0
6024	0.0	6224	0.0	6424	0.0	6624	0.0	6824	0.0	7024	0.0
6028	0.0	6228	0.0	6428	0.0	6628	0.0	6828	0.0	7028	0.0
6032	0.0	6232	0.0	6432	0.0	6632	0.0	6832	0.0	7032	0.0
6036	0.0	6236	0.0	6436	0.0	6636	0.0	6836	0.0	7036	0.0
6040	0.0	6240	0.0	6440	0.0	6640	0.0	6840	0.0	7040	0.0
6044	0.0	6244	0.0	6444	0.0	6644	0.0	6844	0.0	7044	0.0
6048	0.0	6248	0.0	6448	0.0	6648	0.0	6848	0.0	7048	0.0
6052	0.0	6252	0.0	6452	0.0	6652	0.0	6852	0.0	7052	0.0
6056	0.0	6256	0.0	6456	0.0	6656	0.0	6856	0.0	7056	0.0
6060	0.0	6260	0.0	6460	0.0	6660	0.0	6860	0.0	7060	0.0
6064	0.0	6264	0.0	6464	0.0	6664	0.0	6864	0.0	7064	0.0
6068	0.0	6268	0.0	6468	0.0	6668	0.0	6868	0.0	7068	0.0
6072	0.0	6272	0.0	6472	0.0	6672	0.0	6872	0.0	7072	0.0
6076	0.0	6276	0.0	6476	0.0	6676	0.0	6876	0.0	7076	0.0
6080	0.0	6280	0.0	6480	0.0	6680	0.0	6880	0.0	7080	0.0
6084	0.0	6284	0.0	6484	0.0	6684	0.0	6884	0.0	7084	0.0
6088	0.0	6288	0.0	6488	0.0	6688	0.0	6888	0.0	7088	0.0
6092	0.0	6292	0.0	6492	0.0	6692	0.0	6892	0.0	7092	0.0
6096	0.0	6296	0.0	6496	0.0	6696	0.0	6896	0.0	7096	0.0
6100	0.0	6300	0.0	6500	0.0	6700	0.0	6900	0.0	7100	0.0
6104	0.0	6304	0.0	6504	0.0	6704	0.0	6904	0.0	7104	0.0
6108	0.0	6308	0.0	6508	0.0	6708	0.0	6908	0.0	7108	0.0
6112	0.0	6312	0.0	6512	0.0	6712	0.0	6912	0.0	7112	0.0
6116	0.0	6316	0.0	6516	0.0	6716	0.0	6916	0.0	7116	0.0
6120	0.0	6320	0.0	6520	0.0	6720	0.0	6920	0.0	7120	0.0
6124	0.0	6324	0.0	6524	0.0	6724	0.0	6924	0.0	7124	0.0
6128	0.0	6328	0.0	6528	0.0	6728	0.0	6928	0.0	7128	0.0
6132	0.0	6332	0.0	6532	0.0	6732	0.0	6932	0.0	7132	0.0
6136	0.0	6336	0.0	6536	0.0	6736	0.0	6936	0.0	7136	0.0
6140	0.0	6340	0.0	6540	0.0	6740	0.0	6940	0.0	7140	0.0
6144	0.0	6344	0.0	6544	0.0	6744	0.0	6944	0.0	7144	0.0
6148	0.0	6348	0.0	6548	0.0	6748	0.0	6948	0.0	7148	0.0
6152	0.0	6352	0.0	6552	0.0	6752	0.0	6952	0.0	7152	0.0
6156	0.0	6356	0.0	6556	0.0	6756	0.0	6956	0.0	7156	0.0
6160	0.0	6360	0.0	6560	0.0	6760	0.0	6960	0.0	7160	0.0
6164	0.0	6364	0.0	6564	0.0	6764	0.0	6964	0.0	7164	0.0
6168	0.0	6368	0.0	6568	0.0	6768	0.0	6968	0.0	7168	0.0
6172	0.0	6372	0.0	6572	0.0	6772	0.0	6972	0.0	7172	0.0
6176	0.0	6376	0.0	6576	0.0	6776	0.0	6976	0.0	7176	0.0
6180	0.0	6380	0.0	6580	0.0	6780	0.0	6980	0.0	7180	0.0
6184	0.0	6384	0.0	6584	0.0	6784	0.0	6984	0.0	7184	0.0
6188	0.0	6388	0.0	6588	0.0	6788	0.0	6988	0.0	7188	0.0
6192	0.0	6392	0.0	6592	0.0	6792	0.0	6992	0.0	7192	0.0
6196	0.0	6396	0.0	6596	0.0	6796	0.0	6996	0.0	7196	0.0
6200	0.0	6400	0.0	6600	0.0	6800	0.0	7000	0.0	7200	0.0

Unit 6 - Barham Business Park
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Princes Parade
 Private East
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Date 17/12/2018
 File DRAINAGE AREA C, PRIVAT...

Designed by SAH
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Micro Drainage Source Control 2017.1.2


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)
7204	0.0	7404	0.0	7604	0.0	7804	0.0	8004	0.0	8204	0.0
7208	0.0	7408	0.0	7608	0.0	7808	0.0	8008	0.0	8208	0.0
7212	0.0	7412	0.0	7612	0.0	7812	0.0	8012	0.0	8212	0.0
7216	0.0	7416	0.0	7616	0.0	7816	0.0	8016	0.0	8216	0.0
7220	0.0	7420	0.0	7620	0.0	7820	0.0	8020	0.0	8220	0.0
7224	0.0	7424	0.0	7624	0.0	7824	0.0	8024	0.0	8224	0.0
7228	0.0	7428	0.0	7628	0.0	7828	0.0	8028	0.0	8228	0.0
7232	0.0	7432	0.0	7632	0.0	7832	0.0	8032	0.0	8232	0.0
7236	0.0	7436	0.0	7636	0.0	7836	0.0	8036	0.0	8236	0.0
7240	0.0	7440	0.0	7640	0.0	7840	0.0	8040	0.0	8240	0.0
7244	0.0	7444	0.0	7644	0.0	7844	0.0	8044	0.0	8244	0.0
7248	0.0	7448	0.0	7648	0.0	7848	0.0	8048	0.0	8248	0.0
7252	0.0	7452	0.0	7652	0.0	7852	0.0	8052	0.0	8252	0.0
7256	0.0	7456	0.0	7656	0.0	7856	0.0	8056	0.0	8256	0.0
7260	0.0	7460	0.0	7660	0.0	7860	0.0	8060	0.0	8260	0.0
7264	0.0	7464	0.0	7664	0.0	7864	0.0	8064	0.0	8264	0.0
7268	0.0	7468	0.0	7668	0.0	7868	0.0	8068	0.0	8268	0.0
7272	0.0	7472	0.0	7672	0.0	7872	0.0	8072	0.0	8272	0.0
7276	0.0	7476	0.0	7676	0.0	7876	0.0	8076	0.0	8276	0.0
7280	0.0	7480	0.0	7680	0.0	7880	0.0	8080	0.0	8280	0.0
7284	0.0	7484	0.0	7684	0.0	7884	0.0	8084	0.0	8284	0.0
7288	0.0	7488	0.0	7688	0.0	7888	0.0	8088	0.0	8288	0.0
7292	0.0	7492	0.0	7692	0.0	7892	0.0	8092	0.0	8292	0.0
7296	0.0	7496	0.0	7696	0.0	7896	0.0	8096	0.0	8296	0.0
7300	0.0	7500	0.0	7700	0.0	7900	0.0	8100	0.0	8300	0.0
7304	0.0	7504	0.0	7704	0.0	7904	0.0	8104	0.0	8304	0.0
7308	0.0	7508	0.0	7708	0.0	7908	0.0	8108	0.0	8308	0.0
7312	0.0	7512	0.0	7712	0.0	7912	0.0	8112	0.0	8312	0.0
7316	0.0	7516	0.0	7716	0.0	7916	0.0	8116	0.0	8316	0.0
7320	0.0	7520	0.0	7720	0.0	7920	0.0	8120	0.0	8320	0.0
7324	0.0	7524	0.0	7724	0.0	7924	0.0	8124	0.0	8324	0.0
7328	0.0	7528	0.0	7728	0.0	7928	0.0	8128	0.0	8328	0.0
7332	0.0	7532	0.0	7732	0.0	7932	0.0	8132	0.0	8332	0.0
7336	0.0	7536	0.0	7736	0.0	7936	0.0	8136	0.0	8336	0.0
7340	0.0	7540	0.0	7740	0.0	7940	0.0	8140	0.0	8340	0.0
7344	0.0	7544	0.0	7744	0.0	7944	0.0	8144	0.0	8344	0.0
7348	0.0	7548	0.0	7748	0.0	7948	0.0	8148	0.0	8348	0.0
7352	0.0	7552	0.0	7752	0.0	7952	0.0	8152	0.0	8352	0.0
7356	0.0	7556	0.0	7756	0.0	7956	0.0	8156	0.0	8356	0.0
7360	0.0	7560	0.0	7760	0.0	7960	0.0	8160	0.0	8360	0.0
7364	0.0	7564	0.0	7764	0.0	7964	0.0	8164	0.0	8364	0.0
7368	0.0	7568	0.0	7768	0.0	7968	0.0	8168	0.0	8368	0.0
7372	0.0	7572	0.0	7772	0.0	7972	0.0	8172	0.0	8372	0.0
7376	0.0	7576	0.0	7776	0.0	7976	0.0	8176	0.0	8376	0.0
7380	0.0	7580	0.0	7780	0.0	7980	0.0	8180	0.0	8380	0.0
7384	0.0	7584	0.0	7784	0.0	7984	0.0	8184	0.0	8384	0.0
7388	0.0	7588	0.0	7788	0.0	7988	0.0	8188	0.0	8388	0.0
7392	0.0	7592	0.0	7792	0.0	7992	0.0	8192	0.0	8392	0.0
7396	0.0	7596	0.0	7796	0.0	7996	0.0	8196	0.0	8396	0.0
7400	0.0	7600	0.0	7800	0.0	8000	0.0	8200	0.0	8400	0.0

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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Private East 1:100+1:10	
Date 17/12/2018 File DRAINAGE AREA C, PRIVAT...	Designed by SAH Checked by	
Micro Drainage		Source Control 2017.1.2


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)
8404	0.0	8604	0.0	8804	0.0	9004	0.0	9204	0.0	9404	0.0
8408	0.0	8608	0.0	8808	0.0	9008	0.0	9208	0.0	9408	0.0
8412	0.0	8612	0.0	8812	0.0	9012	0.0	9212	0.0	9412	0.0
8416	0.0	8616	0.0	8816	0.0	9016	0.0	9216	0.0	9416	0.0
8420	0.0	8620	0.0	8820	0.0	9020	0.0	9220	0.0	9420	0.0
8424	0.0	8624	0.0	8824	0.0	9024	0.0	9224	0.0	9424	0.0
8428	0.0	8628	0.0	8828	0.0	9028	0.0	9228	0.0	9428	0.0
8432	0.0	8632	0.0	8832	0.0	9032	0.0	9232	0.0	9432	0.0
8436	0.0	8636	0.0	8836	0.0	9036	0.0	9236	0.0	9436	0.0
8440	0.0	8640	0.0	8840	0.0	9040	0.0	9240	0.0	9440	0.0
8444	0.0	8644	0.0	8844	0.0	9044	0.0	9244	0.0	9444	0.0
8448	0.0	8648	0.0	8848	0.0	9048	0.0	9248	0.0	9448	0.0
8452	0.0	8652	0.0	8852	0.0	9052	0.0	9252	0.0	9452	0.0
8456	0.0	8656	0.0	8856	0.0	9056	0.0	9256	0.0	9456	0.0
8460	0.0	8660	0.0	8860	0.0	9060	0.0	9260	0.0	9460	0.0
8464	0.0	8664	0.0	8864	0.0	9064	0.0	9264	0.0	9464	0.0
8468	0.0	8668	0.0	8868	0.0	9068	0.0	9268	0.0	9468	0.0
8472	0.0	8672	0.0	8872	0.0	9072	0.0	9272	0.0	9472	0.0
8476	0.0	8676	0.0	8876	0.0	9076	0.0	9276	0.0	9476	0.0
8480	0.0	8680	0.0	8880	0.0	9080	0.0	9280	0.0	9480	0.0
8484	0.0	8684	0.0	8884	0.0	9084	0.0	9284	0.0	9484	0.0
8488	0.0	8688	0.0	8888	0.0	9088	0.0	9288	0.0	9488	0.0
8492	0.0	8692	0.0	8892	0.0	9092	0.0	9292	0.0	9492	0.0
8496	0.0	8696	0.0	8896	0.0	9096	0.0	9296	0.0	9496	0.0
8500	0.0	8700	0.0	8900	0.0	9100	0.0	9300	0.0	9500	0.0
8504	0.0	8704	0.0	8904	0.0	9104	0.0	9304	0.0	9504	0.0
8508	0.0	8708	0.0	8908	0.0	9108	0.0	9308	0.0	9508	0.0
8512	0.0	8712	0.0	8912	0.0	9112	0.0	9312	0.0	9512	0.0
8516	0.0	8716	0.0	8916	0.0	9116	0.0	9316	0.0	9516	0.0
8520	0.0	8720	0.0	8920	0.0	9120	0.0	9320	0.0	9520	0.0
8524	0.0	8724	0.0	8924	0.0	9124	0.0	9324	0.0	9524	0.0
8528	0.0	8728	0.0	8928	0.0	9128	0.0	9328	0.0	9528	0.0
8532	0.0	8732	0.0	8932	0.0	9132	0.0	9332	0.0	9532	0.0
8536	0.0	8736	0.0	8936	0.0	9136	0.0	9336	0.0	9536	0.0
8540	0.0	8740	0.0	8940	0.0	9140	0.0	9340	0.0	9540	0.0
8544	0.0	8744	0.0	8944	0.0	9144	0.0	9344	0.0	9544	0.0
8548	0.0	8748	0.0	8948	0.0	9148	0.0	9348	0.0	9548	0.0
8552	0.0	8752	0.0	8952	0.0	9152	0.0	9352	0.0	9552	0.0
8556	0.0	8756	0.0	8956	0.0	9156	0.0	9356	0.0	9556	0.0
8560	0.0	8760	0.0	8960	0.0	9160	0.0	9360	0.0	9560	0.0
8564	0.0	8764	0.0	8964	0.0	9164	0.0	9364	0.0	9564	0.0
8568	0.0	8768	0.0	8968	0.0	9168	0.0	9368	0.0	9568	0.0
8572	0.0	8772	0.0	8972	0.0	9172	0.0	9372	0.0	9572	0.0
8576	0.0	8776	0.0	8976	0.0	9176	0.0	9376	0.0	9576	0.0
8580	0.0	8780	0.0	8980	0.0	9180	0.0	9380	0.0	9580	0.0
8584	0.0	8784	0.0	8984	0.0	9184	0.0	9384	0.0	9584	0.0
8588	0.0	8788	0.0	8988	0.0	9188	0.0	9388	0.0	9588	0.0
8592	0.0	8792	0.0	8992	0.0	9192	0.0	9392	0.0	9592	0.0
8596	0.0	8796	0.0	8996	0.0	9196	0.0	9396	0.0	9596	0.0
8600	0.0	8800	0.0	9000	0.0	9200	0.0	9400	0.0	9600	0.0

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Micro Drainage		Source Control 2017.1.2

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)
9604	0.0	9684	0.0	9764	0.0	9844	0.0	9924	0.0	10004	0.0
9608	0.0	9688	0.0	9768	0.0	9848	0.0	9928	0.0	10008	0.0
9612	0.0	9692	0.0	9772	0.0	9852	0.0	9932	0.0	10012	0.0
9616	0.0	9696	0.0	9776	0.0	9856	0.0	9936	0.0	10016	0.0
9620	0.0	9700	0.0	9780	0.0	9860	0.0	9940	0.0	10020	0.0
9624	0.0	9704	0.0	9784	0.0	9864	0.0	9944	0.0	10024	0.0
9628	0.0	9708	0.0	9788	0.0	9868	0.0	9948	0.0	10028	0.0
9632	0.0	9712	0.0	9792	0.0	9872	0.0	9952	0.0	10032	0.0
9636	0.0	9716	0.0	9796	0.0	9876	0.0	9956	0.0	10036	0.0
9640	0.0	9720	0.0	9800	0.0	9880	0.0	9960	0.0	10040	0.0
9644	0.0	9724	0.0	9804	0.0	9884	0.0	9964	0.0	10044	0.0
9648	0.0	9728	0.0	9808	0.0	9888	0.0	9968	0.0	10048	0.0
9652	0.0	9732	0.0	9812	0.0	9892	0.0	9972	0.0	10052	0.0
9656	0.0	9736	0.0	9816	0.0	9896	0.0	9976	0.0	10056	0.0
9660	0.0	9740	0.0	9820	0.0	9900	0.0	9980	0.0	10060	0.0
9664	0.0	9744	0.0	9824	0.0	9904	0.0	9984	0.0	10064	0.0
9668	0.0	9748	0.0	9828	0.0	9908	0.0	9988	0.0	10068	0.0
9672	0.0	9752	0.0	9832	0.0	9912	0.0	9992	0.0	10072	0.0
9676	0.0	9756	0.0	9836	0.0	9916	0.0	9996	0.0	10076	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 2017.1.2	

Model Details

Storage is Online Cover Level (m) 10.000

Cellular Storage Structure

Invert Level (m) 8.000 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	1100.0	1100.0	1.501	0.0	1299.1
1.500	1100.0	1299.0			


Hydro-Brake® Optimum Outflow Control

Unit Reference MD-CHE-0058-2000-1500-2000
 Design Head (m) 1.500
 Design Flow (l/s) 2.0
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available No
 Diameter (mm) 58
 Invert Level (m) 8.000
 Minimum Outlet Pipe Diameter (mm) 75
 Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.500	2.0
Flush-Flo™	0.141	1.3
Kick-Flo®	0.202	0.8
Mean Flow over Head Range	-	1.4

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	1.1	1.200	1.8	3.000	2.8	7.000	4.3
0.200	0.8	1.400	1.9	3.500	3.0	7.500	4.4
0.300	0.9	1.600	2.1	4.000	3.2	8.000	4.5
0.400	1.0	1.800	2.2	4.500	3.4	8.500	4.7
0.500	1.2	2.000	2.3	5.000	3.6	9.000	4.8
0.600	1.3	2.200	2.4	5.500	3.8	9.500	4.9
0.800	1.5	2.400	2.5	6.000	3.9		
1.000	1.6	2.600	2.6	6.500	4.1		

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Micro Drainage	Source Control 2017.1.2
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Summary of Results for Input Hydrograph

Half Drain Time : 7884 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	9.453	1.453	0.0	2.0	2.0	1587.8	O K

Storm Event	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
Input Hydrograph	0.0	1078.6	2948

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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)
4	0.3	204	3.6	404	3.9	604	4.3	804	6.7	1004	11.4
8	0.3	208	3.7	408	3.9	608	4.5	808	6.9	1008	11.4
12	0.3	212	3.7	412	3.9	612	4.5	812	7.2	1012	12.3
16	0.3	216	3.7	416	3.9	616	4.5	816	7.2	1016	12.3
20	0.3	220	3.7	420	3.9	620	4.5	820	7.2	1020	12.3
24	0.3	224	3.7	424	3.9	624	4.5	824	7.2	1024	12.3
28	0.3	228	3.7	428	3.9	628	4.5	828	7.2	1028	12.3
32	1.0	232	3.7	432	3.9	632	4.5	832	7.2	1032	12.3
36	1.1	236	3.8	436	3.9	636	4.6	836	7.3	1036	12.3
40	1.1	240	3.8	440	3.9	640	4.7	840	7.8	1040	12.9
44	1.1	244	3.8	444	3.9	644	4.7	844	7.8	1044	13.1
48	1.1	248	3.8	448	3.9	648	4.7	848	7.8	1048	13.1
52	1.1	252	3.8	452	3.9	652	4.7	852	7.8	1052	13.1
56	1.1	256	3.8	456	3.9	656	4.7	856	7.8	1056	13.1
60	1.6	260	3.8	460	3.9	660	4.7	860	7.8	1060	13.1
64	1.8	264	3.9	464	4.0	664	4.9	864	7.8	1064	13.1
68	1.8	268	3.9	468	4.0	668	5.0	868	8.4	1068	13.6
72	1.8	272	3.9	472	4.0	672	5.0	872	8.4	1072	14.0
76	1.8	276	3.9	476	4.0	676	5.0	876	8.4	1076	14.0
80	1.8	280	3.9	480	4.0	680	5.0	880	8.4	1080	14.0
84	1.8	284	3.9	484	4.0	684	5.0	884	8.4	1084	14.0
88	2.1	288	3.9	488	4.0	688	5.0	888	8.4	1088	14.0
92	2.4	292	3.9	492	4.0	692	5.1	892	8.4	1092	14.0
96	2.4	296	3.9	496	4.0	696	5.4	896	9.0	1096	14.3
100	2.4	300	3.9	500	4.0	700	5.4	900	9.1	1100	14.9
104	2.4	304	3.9	504	4.0	704	5.4	904	9.1	1104	14.9
108	2.4	308	3.9	508	4.0	708	5.4	908	9.1	1108	14.9
112	2.4	312	3.9	512	4.0	712	5.4	912	9.1	1112	14.9
116	2.5	316	3.9	516	4.0	716	5.4	916	9.1	1116	14.9
120	2.9	320	3.9	520	4.0	720	5.4	920	9.1	1120	14.9
124	2.9	324	3.9	524	4.1	724	5.7	924	9.6	1124	15.0
128	2.9	328	3.9	528	4.1	728	5.7	928	9.9	1128	15.7
132	2.9	332	3.9	532	4.1	732	5.7	932	9.9	1132	15.7
136	2.9	336	3.9	536	4.1	736	5.7	936	9.9	1136	15.7
140	2.9	340	3.9	540	4.1	740	5.7	940	9.9	1140	15.7
144	2.9	344	3.9	544	4.1	744	5.7	944	9.9	1144	15.7
148	3.2	348	3.9	548	4.1	748	5.7	948	9.9	1148	15.7
152	3.2	352	3.9	552	4.2	752	6.1	952	10.2	1152	15.7
156	3.2	356	3.9	556	4.2	756	6.2	956	10.6	1156	16.6
160	3.2	360	3.9	560	4.2	760	6.2	960	10.6	1160	16.6
164	3.2	364	3.9	564	4.2	764	6.2	964	10.6	1164	16.6
168	3.2	368	3.9	568	4.2	768	6.2	968	10.6	1168	16.6
172	3.2	372	3.9	572	4.2	772	6.2	972	10.6	1172	16.6
176	3.4	376	3.9	576	4.2	776	6.2	976	10.6	1176	16.6
180	3.5	380	3.9	580	4.3	780	6.5	980	10.8	1180	16.6
184	3.5	384	3.9	584	4.3	784	6.7	984	11.4	1184	17.3
188	3.5	388	3.9	588	4.3	788	6.7	988	11.4	1188	17.5
192	3.5	392	3.9	592	4.3	792	6.7	992	11.4	1192	17.5
196	3.5	396	3.9	596	4.3	796	6.7	996	11.4	1196	17.5
200	3.5	400	3.9	600	4.3	800	6.7	1000	11.4	1200	17.5

Unit 6 - Barham Business Park
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 Private West
 1:100+1:10




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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)
1204	17.5	1404	22.1	1604	19.8	1804	14.0	2004	8.4	2204	5.0
1208	17.5	1408	22.1	1608	19.8	1808	14.0	2008	8.4	2208	5.0
1212	18.0	1412	22.1	1612	19.8	1812	14.0	2012	8.4	2212	5.0
1216	18.3	1416	22.4	1616	19.2	1816	13.6	2016	8.4	2216	5.0
1220	18.3	1420	22.4	1620	19.1	1820	13.1	2020	7.8	2220	4.9
1224	18.3	1424	22.4	1624	19.1	1824	13.1	2024	7.8	2224	4.7
1228	18.3	1428	22.4	1628	19.1	1828	13.1	2028	7.8	2228	4.7
1232	18.3	1432	22.4	1632	19.1	1832	13.1	2032	7.8	2232	4.7
1236	18.3	1436	22.4	1636	19.1	1836	13.1	2036	7.8	2236	4.7
1240	18.6	1440	22.4	1640	19.1	1840	13.1	2040	7.8	2240	4.7
1244	19.1	1444	22.4	1644	18.6	1844	12.9	2044	7.8	2244	4.7
1248	19.1	1448	22.4	1648	18.3	1848	12.3	2048	7.3	2248	4.6
1252	19.1	1452	22.4	1652	18.3	1852	12.3	2052	7.2	2252	4.5
1256	19.1	1456	22.4	1656	18.3	1856	12.3	2056	7.2	2256	4.5
1260	19.1	1460	22.4	1660	18.3	1860	12.3	2060	7.2	2260	4.5
1264	19.1	1464	22.4	1664	18.3	1864	12.3	2064	7.2	2264	4.5
1268	19.2	1468	22.4	1668	18.3	1868	12.3	2068	7.2	2268	4.5
1272	19.8	1472	22.1	1672	18.0	1872	12.3	2072	7.2	2272	4.5
1276	19.8	1476	22.1	1676	17.5	1876	11.4	2076	6.9	2276	4.5
1280	19.8	1480	22.1	1680	17.5	1880	11.4	2080	6.7	2280	4.3
1284	19.8	1484	22.1	1684	17.5	1884	11.4	2084	6.7	2284	4.3
1288	19.8	1488	22.1	1688	17.5	1888	11.4	2088	6.7	2288	4.3
1292	19.8	1492	22.1	1692	17.5	1892	11.4	2092	6.7	2292	4.3
1296	19.8	1496	22.1	1696	17.5	1896	11.4	2096	6.7	2296	4.3
1300	20.5	1500	21.8	1700	17.3	1900	11.4	2100	6.7	2300	4.3
1304	20.5	1504	21.7	1704	16.6	1904	10.8	2104	6.5	2304	4.3
1308	20.5	1508	21.7	1708	16.6	1908	10.6	2108	6.2	2308	4.2
1312	20.5	1512	21.7	1712	16.6	1912	10.6	2112	6.2	2312	4.2
1316	20.5	1516	21.7	1716	16.6	1916	10.6	2116	6.2	2316	4.2
1320	20.5	1520	21.7	1720	16.6	1920	10.6	2120	6.2	2320	4.2
1324	20.5	1524	21.7	1724	16.6	1924	10.6	2124	6.2	2324	4.2
1328	21.0	1528	21.4	1728	16.6	1928	10.6	2128	6.2	2328	4.2
1332	21.1	1532	21.1	1732	15.7	1932	10.2	2132	6.1	2332	4.2
1336	21.1	1536	21.1	1736	15.7	1936	9.9	2136	5.7	2336	4.1
1340	21.1	1540	21.1	1740	15.7	1940	9.9	2140	5.7	2340	4.1
1344	21.1	1544	21.1	1744	15.7	1944	9.9	2144	5.7	2344	4.1
1348	21.1	1548	21.1	1748	15.7	1948	9.9	2148	5.7	2348	4.1
1352	21.1	1552	21.1	1752	15.7	1952	9.9	2152	5.7	2352	4.1
1356	21.4	1556	21.0	1756	15.7	1956	9.9	2156	5.7	2356	4.1
1360	21.7	1560	20.5	1760	15.0	1960	9.6	2160	5.7	2360	4.1
1364	21.7	1564	20.5	1764	14.9	1964	9.1	2164	5.4	2364	4.0
1368	21.7	1568	20.5	1768	14.9	1968	9.1	2168	5.4	2368	4.0
1372	21.7	1572	20.5	1772	14.9	1972	9.1	2172	5.4	2372	4.0
1376	21.7	1576	20.5	1776	14.9	1976	9.1	2176	5.4	2376	4.0
1380	21.7	1580	20.5	1780	14.9	1980	9.1	2180	5.4	2380	4.0
1384	21.8	1584	20.5	1784	14.9	1984	9.1	2184	5.4	2384	4.0
1388	22.1	1588	19.8	1788	14.3	1988	9.0	2188	5.4	2388	4.0
1392	22.1	1592	19.8	1792	14.0	1992	8.4	2192	5.1	2392	4.0
1396	22.1	1596	19.8	1796	14.0	1996	8.4	2196	5.0	2396	4.0
1400	22.1	1600	19.8	1800	14.0	2000	8.4	2200	5.0	2400	4.0

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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)
2404	4.0	2604	3.9	2804	1.8	3004	0.0	3204	0.0	3404	0.0
2408	4.0	2608	3.9	2808	1.8	3008	0.0	3208	0.0	3408	0.0
2412	4.0	2612	3.9	2812	1.8	3012	0.0	3212	0.0	3412	0.0
2416	4.0	2616	3.9	2816	1.8	3016	0.0	3216	0.0	3416	0.0
2420	4.0	2620	3.9	2820	1.8	3020	0.0	3220	0.0	3420	0.0
2424	3.9	2624	3.8	2824	1.6	3024	0.0	3224	0.0	3424	0.0
2428	3.9	2628	3.8	2828	1.1	3028	0.0	3228	0.0	3428	0.0
2432	3.9	2632	3.8	2832	1.1	3032	0.0	3232	0.0	3432	0.0
2436	3.9	2636	3.8	2836	1.1	3036	0.0	3236	0.0	3436	0.0
2440	3.9	2640	3.8	2840	1.1	3040	0.0	3240	0.0	3440	0.0
2444	3.9	2644	3.8	2844	1.1	3044	0.0	3244	0.0	3444	0.0
2448	3.9	2648	3.8	2848	1.1	3048	0.0	3248	0.0	3448	0.0
2452	3.9	2652	3.7	2852	1.0	3052	0.0	3252	0.0	3452	0.0
2456	3.9	2656	3.7	2856	0.3	3056	0.0	3256	0.0	3456	0.0
2460	3.9	2660	3.7	2860	0.3	3060	0.0	3260	0.0	3460	0.0
2464	3.9	2664	3.7	2864	0.3	3064	0.0	3264	0.0	3464	0.0
2468	3.9	2668	3.7	2868	0.3	3068	0.0	3268	0.0	3468	0.0
2472	3.9	2672	3.7	2872	0.3	3072	0.0	3272	0.0	3472	0.0
2476	3.9	2676	3.7	2876	0.3	3076	0.0	3276	0.0	3476	0.0
2480	3.9	2680	3.6	2880	0.3	3080	0.0	3280	0.0	3480	0.0
2484	3.9	2684	3.5	2884	12.9	3084	0.0	3284	0.0	3484	0.0
2488	3.9	2688	3.5	2888	27.8	3088	0.0	3288	0.0	3488	0.0
2492	3.9	2692	3.5	2892	30.8	3092	0.0	3292	0.0	3492	0.0
2496	3.9	2696	3.5	2896	36.1	3096	0.0	3296	0.0	3496	0.0
2500	3.9	2700	3.5	2900	44.7	3100	0.0	3300	0.0	3500	0.0
2504	3.9	2704	3.5	2904	66.7	3104	0.0	3304	0.0	3504	0.0
2508	3.9	2708	3.4	2908	128.6	3108	0.0	3308	0.0	3508	0.0
2512	3.9	2712	3.2	2912	242.4	3112	0.0	3312	0.0	3512	0.0
2516	3.9	2716	3.2	2916	242.4	3116	0.0	3316	0.0	3516	0.0
2520	3.9	2720	3.2	2920	128.6	3120	0.0	3320	0.0	3520	0.0
2524	3.9	2724	3.2	2924	66.7	3124	0.0	3324	0.0	3524	0.0
2528	3.9	2728	3.2	2928	44.7	3128	0.0	3328	0.0	3528	0.0
2532	3.9	2732	3.2	2932	36.1	3132	0.0	3332	0.0	3532	0.0
2536	3.9	2736	3.2	2936	30.8	3136	0.0	3336	0.0	3536	0.0
2540	3.9	2740	2.9	2940	27.8	3140	0.0	3340	0.0	3540	0.0
2544	3.9	2744	2.9	2944	12.9	3144	0.0	3344	0.0	3544	0.0
2548	3.9	2748	2.9	2948	0.0	3148	0.0	3348	0.0	3548	0.0
2552	3.9	2752	2.9	2952	0.0	3152	0.0	3352	0.0	3552	0.0
2556	3.9	2756	2.9	2956	0.0	3156	0.0	3356	0.0	3556	0.0
2560	3.9	2760	2.9	2960	0.0	3160	0.0	3360	0.0	3560	0.0
2564	3.9	2764	2.9	2964	0.0	3164	0.0	3364	0.0	3564	0.0
2568	3.9	2768	2.5	2968	0.0	3168	0.0	3368	0.0	3568	0.0
2572	3.9	2772	2.4	2972	0.0	3172	0.0	3372	0.0	3572	0.0
2576	3.9	2776	2.4	2976	0.0	3176	0.0	3376	0.0	3576	0.0
2580	3.9	2780	2.4	2980	0.0	3180	0.0	3380	0.0	3580	0.0
2584	3.9	2784	2.4	2984	0.0	3184	0.0	3384	0.0	3584	0.0
2588	3.9	2788	2.4	2988	0.0	3188	0.0	3388	0.0	3588	0.0
2592	3.9	2792	2.4	2992	0.0	3192	0.0	3392	0.0	3592	0.0
2596	3.9	2796	2.1	2996	0.0	3196	0.0	3396	0.0	3596	0.0
2600	3.9	2800	1.8	3000	0.0	3200	0.0	3400	0.0	3600	0.0

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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)
3604	0.0	3804	0.0	4004	0.0	4204	0.0	4404	0.0	4604	0.0
3608	0.0	3808	0.0	4008	0.0	4208	0.0	4408	0.0	4608	0.0
3612	0.0	3812	0.0	4012	0.0	4212	0.0	4412	0.0	4612	0.0
3616	0.0	3816	0.0	4016	0.0	4216	0.0	4416	0.0	4616	0.0
3620	0.0	3820	0.0	4020	0.0	4220	0.0	4420	0.0	4620	0.0
3624	0.0	3824	0.0	4024	0.0	4224	0.0	4424	0.0	4624	0.0
3628	0.0	3828	0.0	4028	0.0	4228	0.0	4428	0.0	4628	0.0
3632	0.0	3832	0.0	4032	0.0	4232	0.0	4432	0.0	4632	0.0
3636	0.0	3836	0.0	4036	0.0	4236	0.0	4436	0.0	4636	0.0
3640	0.0	3840	0.0	4040	0.0	4240	0.0	4440	0.0	4640	0.0
3644	0.0	3844	0.0	4044	0.0	4244	0.0	4444	0.0	4644	0.0
3648	0.0	3848	0.0	4048	0.0	4248	0.0	4448	0.0	4648	0.0
3652	0.0	3852	0.0	4052	0.0	4252	0.0	4452	0.0	4652	0.0
3656	0.0	3856	0.0	4056	0.0	4256	0.0	4456	0.0	4656	0.0
3660	0.0	3860	0.0	4060	0.0	4260	0.0	4460	0.0	4660	0.0
3664	0.0	3864	0.0	4064	0.0	4264	0.0	4464	0.0	4664	0.0
3668	0.0	3868	0.0	4068	0.0	4268	0.0	4468	0.0	4668	0.0
3672	0.0	3872	0.0	4072	0.0	4272	0.0	4472	0.0	4672	0.0
3676	0.0	3876	0.0	4076	0.0	4276	0.0	4476	0.0	4676	0.0
3680	0.0	3880	0.0	4080	0.0	4280	0.0	4480	0.0	4680	0.0
3684	0.0	3884	0.0	4084	0.0	4284	0.0	4484	0.0	4684	0.0
3688	0.0	3888	0.0	4088	0.0	4288	0.0	4488	0.0	4688	0.0
3692	0.0	3892	0.0	4092	0.0	4292	0.0	4492	0.0	4692	0.0
3696	0.0	3896	0.0	4096	0.0	4296	0.0	4496	0.0	4696	0.0
3700	0.0	3900	0.0	4100	0.0	4300	0.0	4500	0.0	4700	0.0
3704	0.0	3904	0.0	4104	0.0	4304	0.0	4504	0.0	4704	0.0
3708	0.0	3908	0.0	4108	0.0	4308	0.0	4508	0.0	4708	0.0
3712	0.0	3912	0.0	4112	0.0	4312	0.0	4512	0.0	4712	0.0
3716	0.0	3916	0.0	4116	0.0	4316	0.0	4516	0.0	4716	0.0
3720	0.0	3920	0.0	4120	0.0	4320	0.0	4520	0.0	4720	0.0
3724	0.0	3924	0.0	4124	0.0	4324	0.0	4524	0.0	4724	0.0
3728	0.0	3928	0.0	4128	0.0	4328	0.0	4528	0.0	4728	0.0
3732	0.0	3932	0.0	4132	0.0	4332	0.0	4532	0.0	4732	0.0
3736	0.0	3936	0.0	4136	0.0	4336	0.0	4536	0.0	4736	0.0
3740	0.0	3940	0.0	4140	0.0	4340	0.0	4540	0.0	4740	0.0
3744	0.0	3944	0.0	4144	0.0	4344	0.0	4544	0.0	4744	0.0
3748	0.0	3948	0.0	4148	0.0	4348	0.0	4548	0.0	4748	0.0
3752	0.0	3952	0.0	4152	0.0	4352	0.0	4552	0.0	4752	0.0
3756	0.0	3956	0.0	4156	0.0	4356	0.0	4556	0.0	4756	0.0
3760	0.0	3960	0.0	4160	0.0	4360	0.0	4560	0.0	4760	0.0
3764	0.0	3964	0.0	4164	0.0	4364	0.0	4564	0.0	4764	0.0
3768	0.0	3968	0.0	4168	0.0	4368	0.0	4568	0.0	4768	0.0
3772	0.0	3972	0.0	4172	0.0	4372	0.0	4572	0.0	4772	0.0
3776	0.0	3976	0.0	4176	0.0	4376	0.0	4576	0.0	4776	0.0
3780	0.0	3980	0.0	4180	0.0	4380	0.0	4580	0.0	4780	0.0
3784	0.0	3984	0.0	4184	0.0	4384	0.0	4584	0.0	4784	0.0
3788	0.0	3988	0.0	4188	0.0	4388	0.0	4588	0.0	4788	0.0
3792	0.0	3992	0.0	4192	0.0	4392	0.0	4592	0.0	4792	0.0
3796	0.0	3996	0.0	4196	0.0	4396	0.0	4596	0.0	4796	0.0
3800	0.0	4000	0.0	4200	0.0	4400	0.0	4600	0.0	4800	0.0

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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Private West 1:100+1:10	
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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)
4804	0.0	5004	0.0	5204	0.0	5404	0.0	5604	0.0	5804	0.0
4808	0.0	5008	0.0	5208	0.0	5408	0.0	5608	0.0	5808	0.0
4812	0.0	5012	0.0	5212	0.0	5412	0.0	5612	0.0	5812	0.0
4816	0.0	5016	0.0	5216	0.0	5416	0.0	5616	0.0	5816	0.0
4820	0.0	5020	0.0	5220	0.0	5420	0.0	5620	0.0	5820	0.0
4824	0.0	5024	0.0	5224	0.0	5424	0.0	5624	0.0	5824	0.0
4828	0.0	5028	0.0	5228	0.0	5428	0.0	5628	0.0	5828	0.0
4832	0.0	5032	0.0	5232	0.0	5432	0.0	5632	0.0	5832	0.0
4836	0.0	5036	0.0	5236	0.0	5436	0.0	5636	0.0	5836	0.0
4840	0.0	5040	0.0	5240	0.0	5440	0.0	5640	0.0	5840	0.0
4844	0.0	5044	0.0	5244	0.0	5444	0.0	5644	0.0	5844	0.0
4848	0.0	5048	0.0	5248	0.0	5448	0.0	5648	0.0	5848	0.0
4852	0.0	5052	0.0	5252	0.0	5452	0.0	5652	0.0	5852	0.0
4856	0.0	5056	0.0	5256	0.0	5456	0.0	5656	0.0	5856	0.0
4860	0.0	5060	0.0	5260	0.0	5460	0.0	5660	0.0	5860	0.0
4864	0.0	5064	0.0	5264	0.0	5464	0.0	5664	0.0	5864	0.0
4868	0.0	5068	0.0	5268	0.0	5468	0.0	5668	0.0	5868	0.0
4872	0.0	5072	0.0	5272	0.0	5472	0.0	5672	0.0	5872	0.0
4876	0.0	5076	0.0	5276	0.0	5476	0.0	5676	0.0	5876	0.0
4880	0.0	5080	0.0	5280	0.0	5480	0.0	5680	0.0	5880	0.0
4884	0.0	5084	0.0	5284	0.0	5484	0.0	5684	0.0	5884	0.0
4888	0.0	5088	0.0	5288	0.0	5488	0.0	5688	0.0	5888	0.0
4892	0.0	5092	0.0	5292	0.0	5492	0.0	5692	0.0	5892	0.0
4896	0.0	5096	0.0	5296	0.0	5496	0.0	5696	0.0	5896	0.0
4900	0.0	5100	0.0	5300	0.0	5500	0.0	5700	0.0	5900	0.0
4904	0.0	5104	0.0	5304	0.0	5504	0.0	5704	0.0	5904	0.0
4908	0.0	5108	0.0	5308	0.0	5508	0.0	5708	0.0	5908	0.0
4912	0.0	5112	0.0	5312	0.0	5512	0.0	5712	0.0	5912	0.0
4916	0.0	5116	0.0	5316	0.0	5516	0.0	5716	0.0	5916	0.0
4920	0.0	5120	0.0	5320	0.0	5520	0.0	5720	0.0	5920	0.0
4924	0.0	5124	0.0	5324	0.0	5524	0.0	5724	0.0	5924	0.0
4928	0.0	5128	0.0	5328	0.0	5528	0.0	5728	0.0	5928	0.0
4932	0.0	5132	0.0	5332	0.0	5532	0.0	5732	0.0	5932	0.0
4936	0.0	5136	0.0	5336	0.0	5536	0.0	5736	0.0	5936	0.0
4940	0.0	5140	0.0	5340	0.0	5540	0.0	5740	0.0	5940	0.0
4944	0.0	5144	0.0	5344	0.0	5544	0.0	5744	0.0	5944	0.0
4948	0.0	5148	0.0	5348	0.0	5548	0.0	5748	0.0	5948	0.0
4952	0.0	5152	0.0	5352	0.0	5552	0.0	5752	0.0	5952	0.0
4956	0.0	5156	0.0	5356	0.0	5556	0.0	5756	0.0	5956	0.0
4960	0.0	5160	0.0	5360	0.0	5560	0.0	5760	0.0	5960	0.0
4964	0.0	5164	0.0	5364	0.0	5564	0.0	5764	0.0	5964	0.0
4968	0.0	5168	0.0	5368	0.0	5568	0.0	5768	0.0	5968	0.0
4972	0.0	5172	0.0	5372	0.0	5572	0.0	5772	0.0	5972	0.0
4976	0.0	5176	0.0	5376	0.0	5576	0.0	5776	0.0	5976	0.0
4980	0.0	5180	0.0	5380	0.0	5580	0.0	5780	0.0	5980	0.0
4984	0.0	5184	0.0	5384	0.0	5584	0.0	5784	0.0	5984	0.0
4988	0.0	5188	0.0	5388	0.0	5588	0.0	5788	0.0	5988	0.0
4992	0.0	5192	0.0	5392	0.0	5592	0.0	5792	0.0	5992	0.0
4996	0.0	5196	0.0	5396	0.0	5596	0.0	5796	0.0	5996	0.0
5000	0.0	5200	0.0	5400	0.0	5600	0.0	5800	0.0	6000	0.0

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Micro Drainage		Source Control 2017.1.2

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)
6004	0.0	6204	0.0	6404	0.0	6604	0.0	6804	0.0	7004	0.0
6008	0.0	6208	0.0	6408	0.0	6608	0.0	6808	0.0	7008	0.0
6012	0.0	6212	0.0	6412	0.0	6612	0.0	6812	0.0	7012	0.0
6016	0.0	6216	0.0	6416	0.0	6616	0.0	6816	0.0	7016	0.0
6020	0.0	6220	0.0	6420	0.0	6620	0.0	6820	0.0	7020	0.0
6024	0.0	6224	0.0	6424	0.0	6624	0.0	6824	0.0	7024	0.0
6028	0.0	6228	0.0	6428	0.0	6628	0.0	6828	0.0	7028	0.0
6032	0.0	6232	0.0	6432	0.0	6632	0.0	6832	0.0	7032	0.0
6036	0.0	6236	0.0	6436	0.0	6636	0.0	6836	0.0	7036	0.0
6040	0.0	6240	0.0	6440	0.0	6640	0.0	6840	0.0	7040	0.0
6044	0.0	6244	0.0	6444	0.0	6644	0.0	6844	0.0	7044	0.0
6048	0.0	6248	0.0	6448	0.0	6648	0.0	6848	0.0	7048	0.0
6052	0.0	6252	0.0	6452	0.0	6652	0.0	6852	0.0	7052	0.0
6056	0.0	6256	0.0	6456	0.0	6656	0.0	6856	0.0	7056	0.0
6060	0.0	6260	0.0	6460	0.0	6660	0.0	6860	0.0	7060	0.0
6064	0.0	6264	0.0	6464	0.0	6664	0.0	6864	0.0	7064	0.0
6068	0.0	6268	0.0	6468	0.0	6668	0.0	6868	0.0	7068	0.0
6072	0.0	6272	0.0	6472	0.0	6672	0.0	6872	0.0	7072	0.0
6076	0.0	6276	0.0	6476	0.0	6676	0.0	6876	0.0	7076	0.0
6080	0.0	6280	0.0	6480	0.0	6680	0.0	6880	0.0	7080	0.0
6084	0.0	6284	0.0	6484	0.0	6684	0.0	6884	0.0	7084	0.0
6088	0.0	6288	0.0	6488	0.0	6688	0.0	6888	0.0	7088	0.0
6092	0.0	6292	0.0	6492	0.0	6692	0.0	6892	0.0	7092	0.0
6096	0.0	6296	0.0	6496	0.0	6696	0.0	6896	0.0	7096	0.0
6100	0.0	6300	0.0	6500	0.0	6700	0.0	6900	0.0	7100	0.0
6104	0.0	6304	0.0	6504	0.0	6704	0.0	6904	0.0	7104	0.0
6108	0.0	6308	0.0	6508	0.0	6708	0.0	6908	0.0	7108	0.0
6112	0.0	6312	0.0	6512	0.0	6712	0.0	6912	0.0	7112	0.0
6116	0.0	6316	0.0	6516	0.0	6716	0.0	6916	0.0	7116	0.0
6120	0.0	6320	0.0	6520	0.0	6720	0.0	6920	0.0	7120	0.0
6124	0.0	6324	0.0	6524	0.0	6724	0.0	6924	0.0	7124	0.0
6128	0.0	6328	0.0	6528	0.0	6728	0.0	6928	0.0	7128	0.0
6132	0.0	6332	0.0	6532	0.0	6732	0.0	6932	0.0	7132	0.0
6136	0.0	6336	0.0	6536	0.0	6736	0.0	6936	0.0	7136	0.0
6140	0.0	6340	0.0	6540	0.0	6740	0.0	6940	0.0	7140	0.0
6144	0.0	6344	0.0	6544	0.0	6744	0.0	6944	0.0	7144	0.0
6148	0.0	6348	0.0	6548	0.0	6748	0.0	6948	0.0	7148	0.0
6152	0.0	6352	0.0	6552	0.0	6752	0.0	6952	0.0	7152	0.0
6156	0.0	6356	0.0	6556	0.0	6756	0.0	6956	0.0	7156	0.0
6160	0.0	6360	0.0	6560	0.0	6760	0.0	6960	0.0	7160	0.0
6164	0.0	6364	0.0	6564	0.0	6764	0.0	6964	0.0	7164	0.0
6168	0.0	6368	0.0	6568	0.0	6768	0.0	6968	0.0	7168	0.0
6172	0.0	6372	0.0	6572	0.0	6772	0.0	6972	0.0	7172	0.0
6176	0.0	6376	0.0	6576	0.0	6776	0.0	6976	0.0	7176	0.0
6180	0.0	6380	0.0	6580	0.0	6780	0.0	6980	0.0	7180	0.0
6184	0.0	6384	0.0	6584	0.0	6784	0.0	6984	0.0	7184	0.0
6188	0.0	6388	0.0	6588	0.0	6788	0.0	6988	0.0	7188	0.0
6192	0.0	6392	0.0	6592	0.0	6792	0.0	6992	0.0	7192	0.0
6196	0.0	6396	0.0	6596	0.0	6796	0.0	6996	0.0	7196	0.0
6200	0.0	6400	0.0	6600	0.0	6800	0.0	7000	0.0	7200	0.0

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Micro Drainage		Source Control 2017.1.2

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)
7204	0.0	7404	0.0	7604	0.0	7804	0.0	8004	0.0	8204	0.0
7208	0.0	7408	0.0	7608	0.0	7808	0.0	8008	0.0	8208	0.0
7212	0.0	7412	0.0	7612	0.0	7812	0.0	8012	0.0	8212	0.0
7216	0.0	7416	0.0	7616	0.0	7816	0.0	8016	0.0	8216	0.0
7220	0.0	7420	0.0	7620	0.0	7820	0.0	8020	0.0	8220	0.0
7224	0.0	7424	0.0	7624	0.0	7824	0.0	8024	0.0	8224	0.0
7228	0.0	7428	0.0	7628	0.0	7828	0.0	8028	0.0	8228	0.0
7232	0.0	7432	0.0	7632	0.0	7832	0.0	8032	0.0	8232	0.0
7236	0.0	7436	0.0	7636	0.0	7836	0.0	8036	0.0	8236	0.0
7240	0.0	7440	0.0	7640	0.0	7840	0.0	8040	0.0	8240	0.0
7244	0.0	7444	0.0	7644	0.0	7844	0.0	8044	0.0	8244	0.0
7248	0.0	7448	0.0	7648	0.0	7848	0.0	8048	0.0	8248	0.0
7252	0.0	7452	0.0	7652	0.0	7852	0.0	8052	0.0	8252	0.0
7256	0.0	7456	0.0	7656	0.0	7856	0.0	8056	0.0	8256	0.0
7260	0.0	7460	0.0	7660	0.0	7860	0.0	8060	0.0	8260	0.0
7264	0.0	7464	0.0	7664	0.0	7864	0.0	8064	0.0	8264	0.0
7268	0.0	7468	0.0	7668	0.0	7868	0.0	8068	0.0	8268	0.0
7272	0.0	7472	0.0	7672	0.0	7872	0.0	8072	0.0	8272	0.0
7276	0.0	7476	0.0	7676	0.0	7876	0.0	8076	0.0	8276	0.0
7280	0.0	7480	0.0	7680	0.0	7880	0.0	8080	0.0	8280	0.0
7284	0.0	7484	0.0	7684	0.0	7884	0.0	8084	0.0	8284	0.0
7288	0.0	7488	0.0	7688	0.0	7888	0.0	8088	0.0	8288	0.0
7292	0.0	7492	0.0	7692	0.0	7892	0.0	8092	0.0	8292	0.0
7296	0.0	7496	0.0	7696	0.0	7896	0.0	8096	0.0	8296	0.0
7300	0.0	7500	0.0	7700	0.0	7900	0.0	8100	0.0	8300	0.0
7304	0.0	7504	0.0	7704	0.0	7904	0.0	8104	0.0	8304	0.0
7308	0.0	7508	0.0	7708	0.0	7908	0.0	8108	0.0	8308	0.0
7312	0.0	7512	0.0	7712	0.0	7912	0.0	8112	0.0	8312	0.0
7316	0.0	7516	0.0	7716	0.0	7916	0.0	8116	0.0	8316	0.0
7320	0.0	7520	0.0	7720	0.0	7920	0.0	8120	0.0	8320	0.0
7324	0.0	7524	0.0	7724	0.0	7924	0.0	8124	0.0	8324	0.0
7328	0.0	7528	0.0	7728	0.0	7928	0.0	8128	0.0	8328	0.0
7332	0.0	7532	0.0	7732	0.0	7932	0.0	8132	0.0	8332	0.0
7336	0.0	7536	0.0	7736	0.0	7936	0.0	8136	0.0	8336	0.0
7340	0.0	7540	0.0	7740	0.0	7940	0.0	8140	0.0	8340	0.0
7344	0.0	7544	0.0	7744	0.0	7944	0.0	8144	0.0	8344	0.0
7348	0.0	7548	0.0	7748	0.0	7948	0.0	8148	0.0	8348	0.0
7352	0.0	7552	0.0	7752	0.0	7952	0.0	8152	0.0	8352	0.0
7356	0.0	7556	0.0	7756	0.0	7956	0.0	8156	0.0	8356	0.0
7360	0.0	7560	0.0	7760	0.0	7960	0.0	8160	0.0	8360	0.0
7364	0.0	7564	0.0	7764	0.0	7964	0.0	8164	0.0	8364	0.0
7368	0.0	7568	0.0	7768	0.0	7968	0.0	8168	0.0	8368	0.0
7372	0.0	7572	0.0	7772	0.0	7972	0.0	8172	0.0	8372	0.0
7376	0.0	7576	0.0	7776	0.0	7976	0.0	8176	0.0	8376	0.0
7380	0.0	7580	0.0	7780	0.0	7980	0.0	8180	0.0	8380	0.0
7384	0.0	7584	0.0	7784	0.0	7984	0.0	8184	0.0	8384	0.0
7388	0.0	7588	0.0	7788	0.0	7988	0.0	8188	0.0	8388	0.0
7392	0.0	7592	0.0	7792	0.0	7992	0.0	8192	0.0	8392	0.0
7396	0.0	7596	0.0	7796	0.0	7996	0.0	8196	0.0	8396	0.0
7400	0.0	7600	0.0	7800	0.0	8000	0.0	8200	0.0	8400	0.0

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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ		Princes Parade Private West 1:100+1:10
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Micro Drainage		Source Control 2017.1.2




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)
8404	0.0	8604	0.0	8804	0.0	9004	0.0	9204	0.0	9404	0.0
8408	0.0	8608	0.0	8808	0.0	9008	0.0	9208	0.0	9408	0.0
8412	0.0	8612	0.0	8812	0.0	9012	0.0	9212	0.0	9412	0.0
8416	0.0	8616	0.0	8816	0.0	9016	0.0	9216	0.0	9416	0.0
8420	0.0	8620	0.0	8820	0.0	9020	0.0	9220	0.0	9420	0.0
8424	0.0	8624	0.0	8824	0.0	9024	0.0	9224	0.0	9424	0.0
8428	0.0	8628	0.0	8828	0.0	9028	0.0	9228	0.0	9428	0.0
8432	0.0	8632	0.0	8832	0.0	9032	0.0	9232	0.0	9432	0.0
8436	0.0	8636	0.0	8836	0.0	9036	0.0	9236	0.0	9436	0.0
8440	0.0	8640	0.0	8840	0.0	9040	0.0	9240	0.0	9440	0.0
8444	0.0	8644	0.0	8844	0.0	9044	0.0	9244	0.0	9444	0.0
8448	0.0	8648	0.0	8848	0.0	9048	0.0	9248	0.0	9448	0.0
8452	0.0	8652	0.0	8852	0.0	9052	0.0	9252	0.0	9452	0.0
8456	0.0	8656	0.0	8856	0.0	9056	0.0	9256	0.0	9456	0.0
8460	0.0	8660	0.0	8860	0.0	9060	0.0	9260	0.0	9460	0.0
8464	0.0	8664	0.0	8864	0.0	9064	0.0	9264	0.0	9464	0.0
8468	0.0	8668	0.0	8868	0.0	9068	0.0	9268	0.0	9468	0.0
8472	0.0	8672	0.0	8872	0.0	9072	0.0	9272	0.0	9472	0.0
8476	0.0	8676	0.0	8876	0.0	9076	0.0	9276	0.0	9476	0.0
8480	0.0	8680	0.0	8880	0.0	9080	0.0	9280	0.0	9480	0.0
8484	0.0	8684	0.0	8884	0.0	9084	0.0	9284	0.0	9484	0.0
8488	0.0	8688	0.0	8888	0.0	9088	0.0	9288	0.0	9488	0.0
8492	0.0	8692	0.0	8892	0.0	9092	0.0	9292	0.0	9492	0.0
8496	0.0	8696	0.0	8896	0.0	9096	0.0	9296	0.0	9496	0.0
8500	0.0	8700	0.0	8900	0.0	9100	0.0	9300	0.0	9500	0.0
8504	0.0	8704	0.0	8904	0.0	9104	0.0	9304	0.0	9504	0.0
8508	0.0	8708	0.0	8908	0.0	9108	0.0	9308	0.0	9508	0.0
8512	0.0	8712	0.0	8912	0.0	9112	0.0	9312	0.0	9512	0.0
8516	0.0	8716	0.0	8916	0.0	9116	0.0	9316	0.0	9516	0.0
8520	0.0	8720	0.0	8920	0.0	9120	0.0	9320	0.0	9520	0.0
8524	0.0	8724	0.0	8924	0.0	9124	0.0	9324	0.0	9524	0.0
8528	0.0	8728	0.0	8928	0.0	9128	0.0	9328	0.0	9528	0.0
8532	0.0	8732	0.0	8932	0.0	9132	0.0	9332	0.0	9532	0.0
8536	0.0	8736	0.0	8936	0.0	9136	0.0	9336	0.0	9536	0.0
8540	0.0	8740	0.0	8940	0.0	9140	0.0	9340	0.0	9540	0.0
8544	0.0	8744	0.0	8944	0.0	9144	0.0	9344	0.0	9544	0.0
8548	0.0	8748	0.0	8948	0.0	9148	0.0	9348	0.0	9548	0.0
8552	0.0	8752	0.0	8952	0.0	9152	0.0	9352	0.0	9552	0.0
8556	0.0	8756	0.0	8956	0.0	9156	0.0	9356	0.0	9556	0.0
8560	0.0	8760	0.0	8960	0.0	9160	0.0	9360	0.0	9560	0.0
8564	0.0	8764	0.0	8964	0.0	9164	0.0	9364	0.0	9564	0.0
8568	0.0	8768	0.0	8968	0.0	9168	0.0	9368	0.0	9568	0.0
8572	0.0	8772	0.0	8972	0.0	9172	0.0	9372	0.0	9572	0.0
8576	0.0	8776	0.0	8976	0.0	9176	0.0	9376	0.0	9576	0.0
8580	0.0	8780	0.0	8980	0.0	9180	0.0	9380	0.0	9580	0.0
8584	0.0	8784	0.0	8984	0.0	9184	0.0	9384	0.0	9584	0.0
8588	0.0	8788	0.0	8988	0.0	9188	0.0	9388	0.0	9588	0.0
8592	0.0	8792	0.0	8992	0.0	9192	0.0	9392	0.0	9592	0.0
8596	0.0	8796	0.0	8996	0.0	9196	0.0	9396	0.0	9596	0.0
8600	0.0	8800	0.0	9000	0.0	9200	0.0	9400	0.0	9600	0.0

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Micro Drainage		Source Control 2017.1.2

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)
9604	0.0	9684	0.0	9764	0.0	9844	0.0	9924	0.0	10004	0.0
9608	0.0	9688	0.0	9768	0.0	9848	0.0	9928	0.0	10008	0.0
9612	0.0	9692	0.0	9772	0.0	9852	0.0	9932	0.0	10012	0.0
9616	0.0	9696	0.0	9776	0.0	9856	0.0	9936	0.0	10016	0.0
9620	0.0	9700	0.0	9780	0.0	9860	0.0	9940	0.0	10020	0.0
9624	0.0	9704	0.0	9784	0.0	9864	0.0	9944	0.0	10024	0.0
9628	0.0	9708	0.0	9788	0.0	9868	0.0	9948	0.0	10028	0.0
9632	0.0	9712	0.0	9792	0.0	9872	0.0	9952	0.0	10032	0.0
9636	0.0	9716	0.0	9796	0.0	9876	0.0	9956	0.0	10036	0.0
9640	0.0	9720	0.0	9800	0.0	9880	0.0	9960	0.0	10040	0.0
9644	0.0	9724	0.0	9804	0.0	9884	0.0	9964	0.0	10044	0.0
9648	0.0	9728	0.0	9808	0.0	9888	0.0	9968	0.0	10048	0.0
9652	0.0	9732	0.0	9812	0.0	9892	0.0	9972	0.0	10052	0.0
9656	0.0	9736	0.0	9816	0.0	9896	0.0	9976	0.0	10056	0.0
9660	0.0	9740	0.0	9820	0.0	9900	0.0	9980	0.0	10060	0.0
9664	0.0	9744	0.0	9824	0.0	9904	0.0	9984	0.0	10064	0.0
9668	0.0	9748	0.0	9828	0.0	9908	0.0	9988	0.0	10068	0.0
9672	0.0	9752	0.0	9832	0.0	9912	0.0	9992	0.0	10072	0.0
9676	0.0	9756	0.0	9836	0.0	9916	0.0	9996	0.0	10076	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 2017.1.2	

Model Details

Storage is Online Cover Level (m) 10.000

Cellular Storage Structure

Invert Level (m) 8.000 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	1150.0	1150.0	1.501	0.0	1353.5
1.500	1150.0	1353.5			


Hydro-Brake® Optimum Outflow Control

Unit Reference MD-CHE-0058-2000-1500-2000
 Design Head (m) 1.500
 Design Flow (l/s) 2.0
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available No
 Diameter (mm) 58
 Invert Level (m) 8.000
 Minimum Outlet Pipe Diameter (mm) 75
 Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.500	2.0
Flush-Flo™	0.141	1.3
Kick-Flo®	0.202	0.8
Mean Flow over Head Range	-	1.4

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	1.1	1.200	1.8	3.000	2.8	7.000	4.3
0.200	0.8	1.400	1.9	3.500	3.0	7.500	4.4
0.300	0.9	1.600	2.1	4.000	3.2	8.000	4.5
0.400	1.0	1.800	2.2	4.500	3.4	8.500	4.7
0.500	1.2	2.000	2.3	5.000	3.6	9.000	4.8
0.600	1.3	2.200	2.4	5.500	3.8	9.500	4.9
0.800	1.5	2.400	2.5	6.000	3.9		
1.000	1.6	2.600	2.6	6.500	4.1		

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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Detention Basin With Overflow	
Date 17/12/2018 File DRAINAGE AREA E, BASIN ...	Designed by SAH Checked by	
Micro Drainage		Source Control 2017.1.2

Summary of Results for 10 year Return Period (+20%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Overflow (l/s)	Max Outflow (l/s)	Max Volume (m ³)	Status
15 min Summer	9.870	1.370	4.8	99.8	104.5	283.6	O K
30 min Summer	9.909	1.409	4.8	101.0	105.8	319.1	O K
60 min Summer	9.909	1.409	4.8	101.0	105.8	319.0	O K
120 min Summer	9.908	1.408	4.8	101.0	105.8	318.2	O K
180 min Summer	9.881	1.381	4.8	100.1	104.9	292.9	O K
240 min Summer	9.844	1.344	4.7	98.9	103.7	260.2	O K
360 min Summer	9.764	1.264	4.6	96.3	100.9	192.0	O K
480 min Summer	9.687	1.187	4.5	93.7	98.3	130.8	O K
600 min Summer	9.620	1.120	4.4	91.5	95.9	81.9	O K
720 min Summer	9.568	1.068	4.4	89.6	94.0	44.8	O K
960 min Summer	9.507	1.007	4.3	87.4	91.7	4.5	O K
1440 min Summer	9.323	0.823	4.0	65.4	69.4	0.3	O K
2160 min Summer	9.263	0.763	3.9	46.7	50.6	0.3	O K
2880 min Summer	9.226	0.726	3.9	36.7	40.6	0.2	O K
4320 min Summer	9.181	0.681	3.8	26.6	30.4	0.2	O K
5760 min Summer	9.162	0.662	3.7	21.3	25.1	0.2	O K
7200 min Summer	9.150	0.650	3.7	17.8	21.5	0.2	O K
8640 min Summer	9.143	0.643	3.7	15.7	19.5	0.2	O K
10080 min Summer	9.135	0.635	3.7	14.0	17.7	0.1	O K
15 min Winter	9.872	1.372	4.8	99.8	104.6	285.3	O K
30 min Winter	9.914	1.414	4.8	101.1	106.0	323.2	O K


Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Overflow Volume (m ³)	Time-Peak (mins)
15 min Summer	70.251	0.0	380.2	362.3	16
30 min Summer	45.840	0.0	495.8	472.7	28
60 min Summer	28.723	0.0	623.9	594.3	46
120 min Summer	18.561	0.0	803.2	762.0	80
180 min Summer	14.151	0.0	919.4	869.2	114
240 min Summer	11.591	0.0	1002.4	941.1	148
360 min Summer	8.654	0.0	1122.1	1034.9	212
480 min Summer	6.973	0.0	1205.4	1092.6	272
600 min Summer	5.875	0.0	1269.6	1130.9	330
720 min Summer	5.097	0.0	1321.8	1157.5	384
960 min Summer	4.061	0.0	1403.9	1188.7	492
1440 min Summer	2.947	0.0	1528.3	1210.7	722
2160 min Summer	2.146	0.0	1668.8	1199.7	1076
2880 min Summer	1.723	0.0	1785.8	1168.5	1428
4320 min Summer	1.281	0.0	1976.3	1137.9	2184
5760 min Summer	1.051	0.0	2171.7	1135.8	2896
7200 min Summer	0.911	0.0	2353.1	1135.1	3544
8640 min Summer	0.817	0.0	2531.0	1148.4	4376
10080 min Summer	0.748	0.0	2704.3	1163.3	4952
15 min Winter	70.251	0.0	380.7	362.8	16
30 min Winter	45.840	0.0	496.1	472.7	29

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Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Detention Basin With Overflow	
Date 17/12/2018 File DRAINAGE AREA E, BASIN ...	Designed by SAH Checked by	
Micro Drainage	Source Control 2017.1.2	

Summary of Results for 10 year Return Period (+20%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Overflow (l/s)	Max Outflow (l/s)	Max Volume (m ³)	Status
60 min Winter	9.905	1.405	4.8	100.9	105.7	315.6	O K
120 min Winter	9.881	1.381	4.8	100.1	104.9	293.4	O K
180 min Winter	9.827	1.327	4.7	98.4	103.1	244.9	O K
240 min Winter	9.765	1.265	4.6	96.3	101.0	192.6	O K
360 min Winter	9.643	1.143	4.5	92.2	96.7	98.1	O K
480 min Winter	9.544	1.044	4.3	88.8	93.1	28.8	O K
600 min Winter	9.442	0.942	4.2	85.1	89.2	0.4	O K
720 min Winter	9.349	0.849	4.0	73.4	77.5	0.3	O K
960 min Winter	9.299	0.799	4.0	57.7	61.6	0.3	O K
1440 min Winter	9.244	0.744	3.9	41.1	45.0	0.2	O K
2160 min Winter	9.191	0.691	3.8	29.0	32.8	0.2	O K
2880 min Winter	9.166	0.666	3.8	22.6	26.4	0.2	O K
4320 min Winter	9.143	0.643	3.7	15.9	19.6	0.2	O K
5760 min Winter	9.125	0.625	3.7	12.4	16.0	0.1	O K
7200 min Winter	9.113	0.613	3.7	10.2	13.9	0.1	O K
8640 min Winter	9.106	0.606	3.7	9.0	12.7	0.1	O K
10080 min Winter	9.100	0.600	3.6	8.0	11.6	0.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Overflow Volume (m ³)	Time-Peak (mins)
60 min Winter	28.723	0.0	624.7	595.1	48
120 min Winter	18.561	0.0	805.6	765.0	86
180 min Winter	14.151	0.0	920.3	871.3	122
240 min Winter	11.591	0.0	1003.6	943.8	156
360 min Winter	8.654	0.0	1122.3	1037.0	216
480 min Winter	6.973	0.0	1205.4	1094.9	270
600 min Winter	5.875	0.0	1269.6	1134.3	300
720 min Winter	5.097	0.0	1321.8	1161.0	356
960 min Winter	4.061	0.0	1403.9	1192.7	488
1440 min Winter	2.947	0.0	1528.3	1217.8	724
2160 min Winter	2.146	0.0	1669.1	1213.7	1044
2880 min Winter	1.723	0.0	1786.4	1190.1	1412
4320 min Winter	1.281	0.0	1986.8	1144.1	2240
5760 min Winter	1.051	0.0	2167.7	1119.5	2904
7200 min Winter	0.911	0.0	2356.2	1107.9	3680
8640 min Winter	0.817	0.0	2536.7	1103.3	4160
10080 min Winter	0.748	0.0	2712.4	1102.3	4928

Unit 6 - Barham Business Park Elham Valley Road Barham CT4 6DQ	Princes Parade Detention Basin With Overflow	
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Date 17/12/2018 File DRAINAGE AREA E, BASIN ...	Designed by SAH Checked by	
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Micro Drainage	Source Control 2017.1.2
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Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	1.000
FEH Rainfall Version	2013	Cv (Winter)	1.000
Site Location	GB 618329 134790	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+20

Time Area Diagram

Total Area (ha) 2.161

Time (mins)	Area
From:	To: (ha)
0	4 2.161

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Date 17/12/2018 File DRAINAGE AREA E, BASIN ...	Designed by SAH Checked by	
Micro Drainage	Source Control 2017.1.2	

Model Details

Storage is Online Cover Level (m) 10.000

Tank or Pond Structure

Invert Level (m) 8.500

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	0.0	0.501	1.0	1.001	640.0
0.500	0.0	1.000	1.0	1.500	1000.0

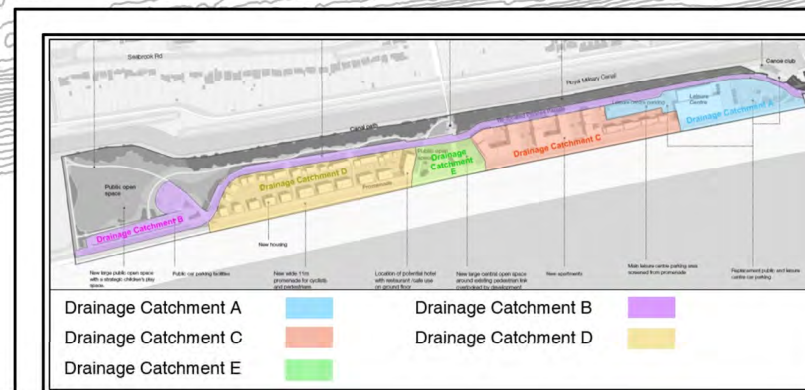
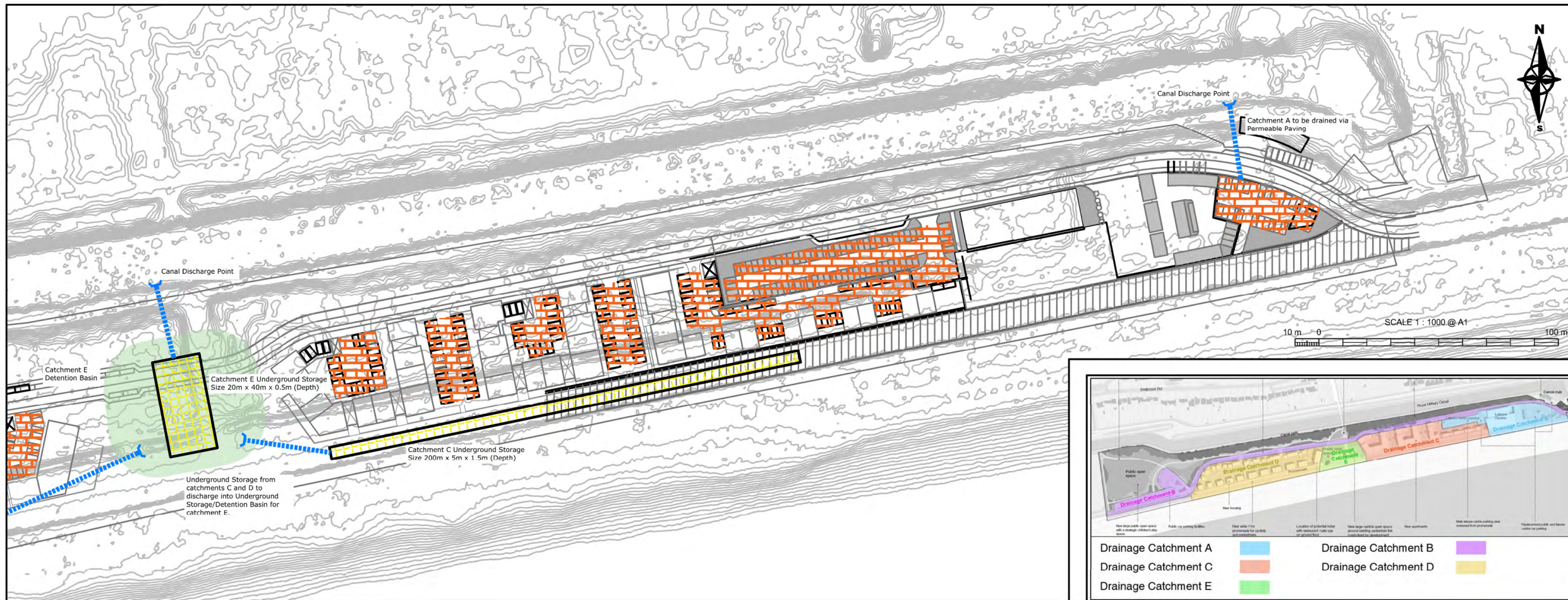
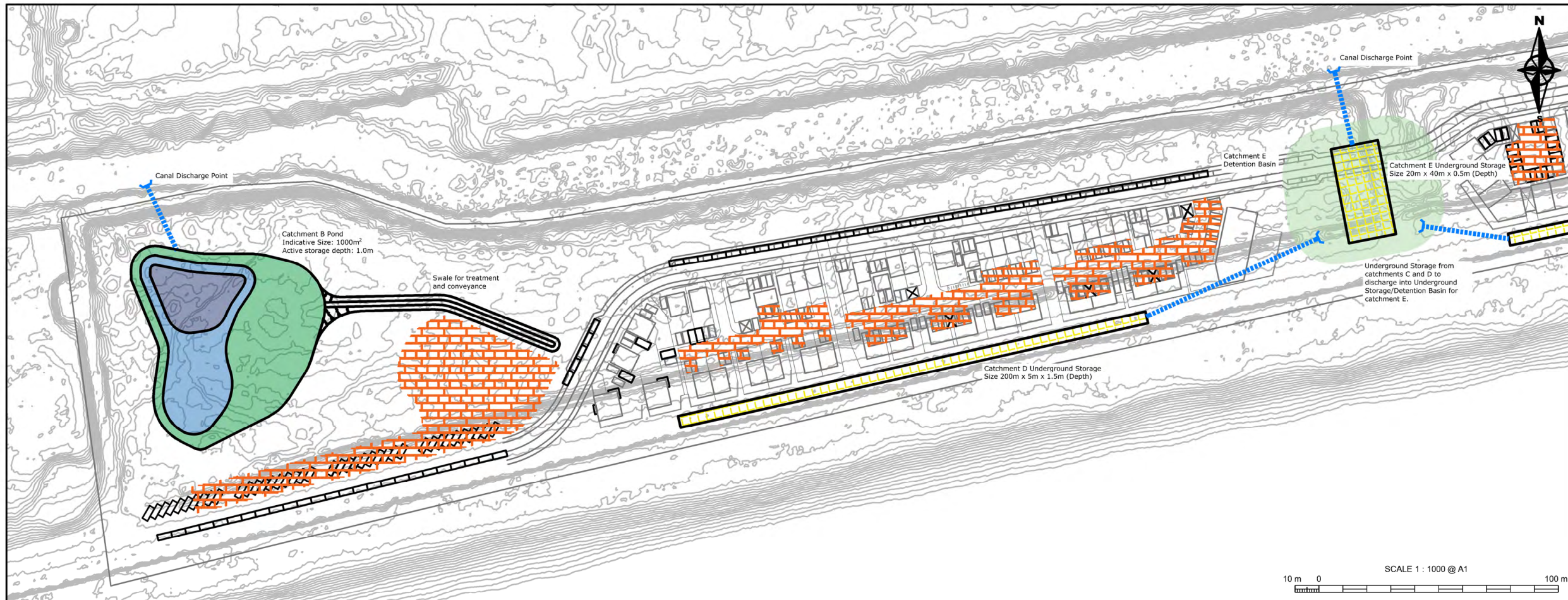
Orifice Outflow Control

Diameter (m) 0.041 Discharge Coefficient 0.600 Invert Level (m) 8.000

Pipe Overflow Control

Diameter (m) 0.300 Entry Loss Coefficient 0.500
Slope (1:X) 100.0 Coefficient of Contraction 0.600
Length (m) 100.000 Upstream Invert Level (m) 9.001
Manning's n 0.015

Appendix A.6 – Indicative Drainage Layout



PRIVATE DRAINAGE AND LEVELS KEY

- Surface Water Drain
- Underground Storage
- Permanent Wet Area
- Planted Area (1:1 Year use)
- Marginal Area (1:10 Year use)
- Detention Basin
- Permeable Paving
- Headwall

Notes

1. Contains Ordnance Survey data © Crown copyright and database right 2018.
2. All dimensions are in metres unless otherwise stated elsewhere.
3. Proposed drainage positions will be subject to detailed design.
4. The size and extent of the pond will be subject to infiltration testing and trial holes.
5. All drainage systems will need to be installed and designed for suitable loading requirements.

herrington
CONSULTING LIMITED

Unit 6-7 Barham Business Park
Elham Valley Road
Canterbury
Kent CT4 6DQ

Tel : 01227 833855
enquiries@herringtonconsulting.co.uk
www.herringtonconsulting.co.uk

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Rev	Description	Date
CLIENT Folkestone and Hythe District Council		
PROJECT Princes Parade, Hythe		
SCALE	PROJ REF	ORIGINATOR
1:1000	1494	LA
DWG REF	CHECKED BY	
INDICATIVE DRAINAGE LAYOUT	SJB	
	DWG No. HC-1494-500	