



Simpson Associates		Page 1
1 Market Place Mews Henley-on-Thames RG9 2AH	Premier Inn, Bicester Tank 1 in 100 yr + 30%	
Date 19.12.2011 File Tank.srcx	Designed By MRR Checked By	
Micro Drainage	Source Control W.12.4	

Summary of Results for 1 year Return Period

Half Drain Time : 48 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (1/s)	Max Control (1/s)	Max $\Sigma$ Outflow (1/s)	Max Volume (m <sup>3</sup> )	Status
15 min Summer	66.215	0.035	0.0	0.8	0.8	2.4	O K
30 min Summer	66.223	0.043	0.0	0.8	0.8	2.9	O K
60 min Summer	66.225	0.045	0.0	0.8	0.8	3.1	O K
120 min Summer	66.224	0.044	0.0	0.8	0.8	3.0	O K
180 min Summer	66.221	0.041	0.0	0.8	0.8	2.8	O K
240 min Summer	66.217	0.037	0.0	0.8	0.8	2.5	O K
360 min Summer	66.209	0.029	0.0	0.8	0.8	2.0	O K
480 min Summer	66.203	0.023	0.0	0.7	0.7	1.5	O K
600 min Summer	66.197	0.017	0.0	0.7	0.7	1.2	O K
720 min Summer	66.193	0.013	0.0	0.7	0.7	0.9	O K
960 min Summer	66.186	0.006	0.0	0.7	0.7	0.4	O K
1440 min Summer	66.180	0.000	0.0	0.6	0.6	0.0	O K
2160 min Summer	66.180	0.000	0.0	0.5	0.5	0.0	O K
2880 min Summer	66.180	0.000	0.0	0.4	0.4	0.0	O K
4320 min Summer	66.180	0.000	0.0	0.3	0.3	0.0	O K
5760 min Summer	66.180	0.000	0.0	0.2	0.2	0.0	O K
7200 min Summer	66.180	0.000	0.0	0.2	0.2	0.0	O K
8640 min Summer	66.180	0.000	0.0	0.2	0.2	0.0	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	30.991	22
30 min Summer	20.215	33
60 min Summer	12.800	54
120 min Summer	7.942	88
180 min Summer	5.979	122
240 min Summer	4.882	154
360 min Summer	3.646	220
480 min Summer	2.956	282
600 min Summer	2.511	340
720 min Summer	2.199	400
960 min Summer	1.782	514
1440 min Summer	1.326	734
2160 min Summer	0.988	0
2880 min Summer	0.800	0
4320 min Summer	0.595	0
5760 min Summer	0.483	0
7200 min Summer	0.410	0
8640 min Summer	0.359	0

Simpson Associates		Page 2
1 Market Place Mews Henley-on-Thames RG9 2AH	Premier Inn, Bicester Tank 1 in 100 yr + 30%	
Date 19.12.2011 File Tank.srcx	Designed By MRR Checked By	
Micro Drainage	Source Control W.12.4	

Summary of Results for 1 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max $\Sigma$ Outflow (l/s)	Max Volume (m <sup>3</sup> )	Status
10080 min Summer	66.180	0.000	0.0	0.1	0.1	0.0	O K
15 min Winter	66.221	0.041	0.0	0.8	0.8	2.8	O K
30 min Winter	66.230	0.050	0.0	0.8	0.8	3.4	O K
60 min Winter	66.234	0.054	0.0	0.8	0.8	3.7	O K
120 min Winter	66.231	0.051	0.0	0.8	0.8	3.5	O K
180 min Winter	66.225	0.045	0.0	0.8	0.8	3.1	O K
240 min Winter	66.219	0.039	0.0	0.8	0.8	2.7	O K
360 min Winter	66.207	0.027	0.0	0.7	0.7	1.9	O K
480 min Winter	66.197	0.017	0.0	0.7	0.7	1.2	O K
600 min Winter	66.190	0.010	0.0	0.7	0.7	0.7	O K
720 min Winter	66.185	0.005	0.0	0.7	0.7	0.3	O K
960 min Winter	66.180	0.000	0.0	0.6	0.6	0.0	O K
1440 min Winter	66.180	0.000	0.0	0.4	0.4	0.0	O K
2160 min Winter	66.180	0.000	0.0	0.3	0.3	0.0	O K
2880 min Winter	66.180	0.000	0.0	0.3	0.3	0.0	O K
4320 min Winter	66.180	0.000	0.0	0.2	0.2	0.0	O K
5760 min Winter	66.180	0.000	0.0	0.2	0.2	0.0	O K
7200 min Winter	66.180	0.000	0.0	0.1	0.1	0.0	O K
8640 min Winter	66.180	0.000	0.0	0.1	0.1	0.0	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
10080 min Summer	0.322	0
15 min Winter	30.991	22
30 min Winter	20.215	34
60 min Winter	12.800	58
120 min Winter	7.942	94
180 min Winter	5.979	132
240 min Winter	4.882	166
360 min Winter	3.646	232
480 min Winter	2.956	294
600 min Winter	2.511	352
720 min Winter	2.199	406
960 min Winter	1.782	0
1440 min Winter	1.326	0
2160 min Winter	0.988	0
2880 min Winter	0.800	0
4320 min Winter	0.595	0
5760 min Winter	0.483	0
7200 min Winter	0.410	0
8640 min Winter	0.359	0

1 Market Place Mews  
Henley-on-Thames  
RG9 2AH

Premier Inn, Bicester  
Tank  
1 in 100 yr + 30%



Date 19.12.2011  
File Tank.srcx

Designed By MRR  
Checked By

Micro Drainage

Source Control W.12.4

Summary of Results for 1 year Return Period

<b>Storm Event</b>	<b>Max Level (m)</b>	<b>Max Depth (m)</b>	<b>Max Infiltration (l/s)</b>	<b>Max Control (l/s)</b>	<b>Max Σ Outflow (l/s)</b>	<b>Max Volume (m<sup>3</sup>)</b>	<b>Status</b>
10080 min Winter	66.180	0.000	0.0	0.1	0.1	0.0	O K
		<b>Storm Event</b>	<b>Rain (mm/hr)</b>	<b>Time-Peak (mins)</b>			
		10080 min Winter	0.322	0			

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RG9 2AH

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1 in 100 yr + 30%



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Micro Drainage

Source Control W.12.4


#### Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	1	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

#### Time / Area Diagram

Total Area (ha) 0.057

<b>Time (mins)</b>	<b>Area (ha)</b>	<b>Time (mins)</b>	<b>Area (ha)</b>	<b>Time (mins)</b>	<b>Area (ha)</b>
0-4	0.019	4-8	0.019	8-12	0.019

Simpson Associates		Page 5
1 Market Place Mews Henley-on-Thames RG9 2AH	Premier Inn, Bicester Tank 1 in 100 yr + 30%	
Date 19.12.2011 File Tank.srcx	Designed By MRR Checked By	
Micro Drainage	Source Control W.12.4	

Model Details

Storage is Online Cover Level (m) 67.200

Cellular Storage Structure


Invert Level (m) 66.180 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 <sup>2</sup> )	Inf. Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )	Inf. Area (m <sup>2</sup> )
0.000	72.0	72.0	0.500	0.0	88.4
0.400	72.0	88.4			

Hydro-Brake® Outflow Control

Design Head (m) 1.000 Diameter (mm) 48  
 Design Flow (l/s) 1.3 Invert Level (m) 66.120  
 Hydro-Brake® Type Md6 SW Only

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.8	1.200	1.4	3.000	2.3	7.000	3.5
0.200	0.7	1.400	1.6	3.500	2.5	7.500	3.6
0.300	0.7	1.600	1.7	4.000	2.6	8.000	3.7
0.400	0.8	1.800	1.8	4.500	2.8	8.500	3.8
0.500	0.9	2.000	1.9	5.000	2.9	9.000	3.9
0.600	1.0	2.200	1.9	5.500	3.1	9.500	4.1
0.800	1.2	2.400	2.0	6.000	3.2		
1.000	1.3	2.600	2.1	6.500	3.4		


Simpson Associates		Page 1
1 Market Place Mews Henley-on-Thames RG9 2AH	Premier Inn, Bicester Tank 1 in 100 yr + 30%	
Date 19.12.2011 File Tank.srcx	Designed By MRR Checked By	
Micro Drainage	Source Control W.12.4	

Summary of Results for 2 year Return Period

Half Drain Time : 67 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (1/s)	Max Control (1/s)	Max $\Sigma$ Outflow (1/s)	Max Volume (m <sup>3</sup> )	Status
15 min Summer	66.229	0.049	0.0	0.8	0.8	3.3	O K
30 min Summer	66.240	0.060	0.0	0.8	0.8	4.1	O K
60 min Summer	66.244	0.064	0.0	0.8	0.8	4.4	O K
120 min Summer	66.242	0.062	0.0	0.8	0.8	4.2	O K
180 min Summer	66.238	0.058	0.0	0.8	0.8	4.0	O K
240 min Summer	66.234	0.054	0.0	0.8	0.8	3.7	O K
360 min Summer	66.225	0.045	0.0	0.8	0.8	3.1	O K
480 min Summer	66.217	0.037	0.0	0.8	0.8	2.5	O K
600 min Summer	66.210	0.030	0.0	0.8	0.8	2.0	O K
720 min Summer	66.204	0.024	0.0	0.7	0.7	1.6	O K
960 min Summer	66.194	0.014	0.0	0.7	0.7	1.0	O K
1440 min Summer	66.184	0.004	0.0	0.6	0.6	0.2	O K
2160 min Summer	66.180	0.000	0.0	0.5	0.5	0.0	O K
2880 min Summer	66.180	0.000	0.0	0.4	0.4	0.0	O K
4320 min Summer	66.180	0.000	0.0	0.3	0.3	0.0	O K
5760 min Summer	66.180	0.000	0.0	0.3	0.3	0.0	O K
7200 min Summer	66.180	0.000	0.0	0.2	0.2	0.0	O K
8640 min Summer	66.180	0.000	0.0	0.2	0.2	0.0	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	40.058	23
30 min Summer	25.963	35
60 min Summer	16.200	58
120 min Summer	9.897	92
180 min Summer	7.378	126
240 min Summer	5.982	160
360 min Summer	4.435	226
480 min Summer	3.581	290
600 min Summer	3.033	350
720 min Summer	2.647	410
960 min Summer	2.136	528
1440 min Summer	1.579	754
2160 min Summer	1.167	0
2880 min Summer	0.941	0
4320 min Summer	0.695	0
5760 min Summer	0.561	0
7200 min Summer	0.475	0
8640 min Summer	0.414	0

Simpson Associates		Page 2
1 Market Place Mews Henley-on-Thames RG9 2AH	Premier Inn, Bicester Tank 1 in 100 yr + 30%	
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Micro Drainage	Source Control W.12.4	

Summary of Results for 2 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max $\Sigma$ Outflow (l/s)	Max Volume (m <sup>3</sup> )	Status
10080 min Summer	66.180	0.000	0.0	0.2	0.2	0.0	O K
15 min Winter	66.236	0.056	0.0	0.8	0.8	3.8	O K
30 min Winter	66.249	0.069	0.0	0.8	0.8	4.7	O K
60 min Winter	66.256	0.076	0.0	0.8	0.8	5.2	O K
120 min Winter	66.253	0.073	0.0	0.8	0.8	5.0	O K
180 min Winter	66.247	0.067	0.0	0.8	0.8	4.6	O K
240 min Winter	66.240	0.060	0.0	0.8	0.8	4.1	O K
360 min Winter	66.226	0.046	0.0	0.8	0.8	3.1	O K
480 min Winter	66.213	0.033	0.0	0.8	0.8	2.3	O K
600 min Winter	66.203	0.023	0.0	0.7	0.7	1.6	O K
720 min Winter	66.195	0.015	0.0	0.7	0.7	1.0	O K
960 min Winter	66.185	0.005	0.0	0.7	0.7	0.3	O K
1440 min Winter	66.180	0.000	0.0	0.5	0.5	0.0	O K
2160 min Winter	66.180	0.000	0.0	0.4	0.4	0.0	O K
2880 min Winter	66.180	0.000	0.0	0.3	0.3	0.0	O K
4320 min Winter	66.180	0.000	0.0	0.2	0.2	0.0	O K
5760 min Winter	66.180	0.000	0.0	0.2	0.2	0.0	O K
7200 min Winter	66.180	0.000	0.0	0.2	0.2	0.0	O K
8640 min Winter	66.180	0.000	0.0	0.1	0.1	0.0	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
10080 min Summer	0.370	0
15 min Winter	40.058	23
30 min Winter	25.963	35
60 min Winter	16.200	60
120 min Winter	9.897	98
180 min Winter	7.378	136
240 min Winter	5.982	174
360 min Winter	4.435	242
480 min Winter	3.581	306
600 min Winter	3.033	366
720 min Winter	2.647	422
960 min Winter	2.136	532
1440 min Winter	1.579	0
2160 min Winter	1.167	0
2880 min Winter	0.941	0
4320 min Winter	0.695	0
5760 min Winter	0.561	0
7200 min Winter	0.475	0
8640 min Winter	0.414	0

1 Market Place Mews  
Henley-on-Thames  
RG9 2AH

Premier Inn, Bicester  
Tank  
1 in 100 yr + 30%



Date 19.12.2011  
File Tank.srcx

Designed By MRR  
Checked By

Micro Drainage

Source Control W.12.4

Summary of Results for 2 year Return Period

<b>Storm Event</b>	<b>Max Level (m)</b>	<b>Max Depth (m)</b>	<b>Max Infiltration (l/s)</b>	<b>Max Control (l/s)</b>	<b>Max <math>\Sigma</math> Outflow (l/s)</b>	<b>Max Volume (m<sup>3</sup>)</b>	<b>Status</b>
10080 min Winter	66.180	0.000	0.0	0.1	0.1	0.0	O K
		<b>Storm Event</b>	<b>Rain (mm/hr)</b>	<b>Time-Peak (mins)</b>			
		10080 min Winter	0.370	0			



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RG9 2AH

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Tank  
1 in 100 yr + 30%



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Checked By

Micro Drainage

Source Control W.12.4


#### Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	2	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

#### Time / Area Diagram

Total Area (ha) 0.057

<b>Time (mins)</b>	<b>Area (ha)</b>	<b>Time (mins)</b>	<b>Area (ha)</b>	<b>Time (mins)</b>	<b>Area (ha)</b>
0-4	0.019	4-8	0.019	8-12	0.019

Simpson Associates		Page 5
1 Market Place Mews Henley-on-Thames RG9 2AH	Premier Inn, Bicester Tank 1 in 100 yr + 30%	
Date 19.12.2011 File Tank.srcx	Designed By MRR Checked By	
Micro Drainage	Source Control W.12.4	

Model Details

Storage is Online Cover Level (m) 67.200

Cellular Storage Structure


Invert Level (m) 66.180 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 <sup>2</sup> )	Inf. Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )	Inf. Area (m <sup>2</sup> )
0.000	72.0	72.0	0.500	0.0	88.4
0.400	72.0	88.4			

Hydro-Brake® Outflow Control

Design Head (m) 1.000 Diameter (mm) 48  
 Design Flow (l/s) 1.3 Invert Level (m) 66.120  
 Hydro-Brake® Type Md6 SW Only

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.8	1.200	1.4	3.000	2.3	7.000	3.5
0.200	0.7	1.400	1.6	3.500	2.5	7.500	3.6
0.300	0.7	1.600	1.7	4.000	2.6	8.000	3.7
0.400	0.8	1.800	1.8	4.500	2.8	8.500	3.8
0.500	0.9	2.000	1.9	5.000	2.9	9.000	3.9
0.600	1.0	2.200	1.9	5.500	3.1	9.500	4.1
0.800	1.2	2.400	2.0	6.000	3.2		
1.000	1.3	2.600	2.1	6.500	3.4		


Simpson Associates		Page 1
1 Market Place Mews Henley-on-Thames RG9 2AH	Premier Inn, Bicester Tank 1 in 100 yr + 30%	
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Micro Drainage	Source Control W.12.4	

Summary of Results for 10 year Return Period

Half Drain Time : 109 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (1/s)	Max Control (1/s)	Max $\Sigma$ Outflow (1/s)	Max Volume (m <sup>3</sup> )	Status
15 min Summer	66.259	0.079	0.0	0.8	0.8	5.4	O K
30 min Summer	66.278	0.098	0.0	0.8	0.8	6.7	O K
60 min Summer	66.291	0.111	0.0	0.8	0.8	7.6	O K
120 min Summer	66.290	0.110	0.0	0.8	0.8	7.6	O K
180 min Summer	66.285	0.105	0.0	0.8	0.8	7.2	O K
240 min Summer	66.280	0.100	0.0	0.8	0.8	6.9	O K
360 min Summer	66.270	0.090	0.0	0.8	0.8	6.1	O K
480 min Summer	66.259	0.079	0.0	0.8	0.8	5.4	O K
600 min Summer	66.249	0.069	0.0	0.8	0.8	4.7	O K
720 min Summer	66.240	0.060	0.0	0.8	0.8	4.1	O K
960 min Summer	66.224	0.044	0.0	0.8	0.8	3.0	O K
1440 min Summer	66.202	0.022	0.0	0.7	0.7	1.5	O K
2160 min Summer	66.186	0.006	0.0	0.7	0.7	0.4	O K
2880 min Summer	66.180	0.000	0.0	0.6	0.6	0.0	O K
4320 min Summer	66.180	0.000	0.0	0.4	0.4	0.0	O K
5760 min Summer	66.180	0.000	0.0	0.3	0.3	0.0	O K
7200 min Summer	66.180	0.000	0.0	0.3	0.3	0.0	O K
8640 min Summer	66.180	0.000	0.0	0.3	0.3	0.0	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	59.937	24
30 min Summer	38.718	37
60 min Summer	24.003	64
120 min Summer	14.508	108
180 min Summer	10.722	138
240 min Summer	8.627	172
360 min Summer	6.339	240
480 min Summer	5.090	306
600 min Summer	4.291	370
720 min Summer	3.732	434
960 min Summer	2.993	556
1440 min Summer	2.191	786
2160 min Summer	1.603	1128
2880 min Summer	1.283	0
4320 min Summer	0.938	0
5760 min Summer	0.751	0
7200 min Summer	0.631	0
8640 min Summer	0.548	0

Simpson Associates		Page 2
1 Market Place Mews Henley-on-Thames RG9 2AH	Premier Inn, Bicester Tank 1 in 100 yr + 30%	
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Micro Drainage	Source Control W.12.4	

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max $\Sigma$ Outflow (l/s)	Max Volume (m <sup>3</sup> )	Status
10080 min Summer	66.180	0.000	0.0	0.2	0.2	0.0	O K
15 min Winter	66.270	0.090	0.0	0.8	0.8	6.2	O K
30 min Winter	66.293	0.113	0.0	0.8	0.8	7.7	O K
60 min Winter	66.309	0.129	0.0	0.8	0.8	8.8	O K
<b>120 min Winter</b>	<b>66.312</b>	<b>0.132</b>	<b>0.0</b>	<b>0.8</b>	<b>0.8</b>	<b>9.1</b>	<b>O K</b>
180 min Winter	66.305	0.125	0.0	0.8	0.8	8.5	O K
240 min Winter	66.297	0.117	0.0	0.8	0.8	8.0	O K
360 min Winter	66.281	0.101	0.0	0.8	0.8	6.9	O K
480 min Winter	66.264	0.084	0.0	0.8	0.8	5.8	O K
600 min Winter	66.249	0.069	0.0	0.8	0.8	4.7	O K
720 min Winter	66.234	0.054	0.0	0.8	0.8	3.7	O K
960 min Winter	66.212	0.032	0.0	0.8	0.8	2.2	O K
1440 min Winter	66.188	0.008	0.0	0.7	0.7	0.5	O K
2160 min Winter	66.180	0.000	0.0	0.5	0.5	0.0	O K
2880 min Winter	66.180	0.000	0.0	0.4	0.4	0.0	O K
4320 min Winter	66.180	0.000	0.0	0.3	0.3	0.0	O K
5760 min Winter	66.180	0.000	0.0	0.3	0.3	0.0	O K
7200 min Winter	66.180	0.000	0.0	0.2	0.2	0.0	O K
8640 min Winter	66.180	0.000	0.0	0.2	0.2	0.0	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
10080 min Summer	0.486	0
15 min Winter	59.937	24
30 min Winter	38.718	37
60 min Winter	24.003	64
<b>120 min Winter</b>	<b>14.508</b>	<b>118</b>
180 min Winter	10.722	150
240 min Winter	8.627	186
360 min Winter	6.339	262
480 min Winter	5.090	332
600 min Winter	4.291	398
720 min Winter	3.732	460
960 min Winter	2.993	576
1440 min Winter	2.191	792
2160 min Winter	1.603	0
2880 min Winter	1.283	0
4320 min Winter	0.938	0
5760 min Winter	0.751	0
7200 min Winter	0.631	0
8640 min Winter	0.548	0



1 Market Place Mews  
Henley-on-Thames  
RG9 2AH

Premier Inn, Bicester  
Tank  
1 in 100 yr + 30%



Date 19.12.2011  
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Designed By MRR  
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Micro Drainage

Source Control W.12.4

#### Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

#### Time / Area Diagram

Total Area (ha) 0.057

<b>Time (mins)</b>	<b>Area (ha)</b>	<b>Time (mins)</b>	<b>Area (ha)</b>	<b>Time (mins)</b>	<b>Area (ha)</b>
0-4	0.019	4-8	0.019	8-12	0.019

1 Market Place Mews  
Henley-on-Thames  
RG9 2AH

Premier Inn, Bicester  
Tank  
1 in 100 yr + 30%



Date 19.12.2011  
File Tank.srcx

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Checked By

Micro Drainage

Source Control W.12.4

Model Details

Storage is Online Cover Level (m) 67.200

Cellular Storage Structure


Invert Level (m) 66.180 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 <sup>2</sup> )	Inf. Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )	Inf. Area (m <sup>2</sup> )
0.000	72.0	72.0	0.500	0.0	88.4
0.400	72.0	88.4			

Hydro-Brake® Outflow Control

Design Head (m) 1.000 Diameter (mm) 48  
Design Flow (l/s) 1.3 Invert Level (m) 66.120  
Hydro-Brake® Type Md6 SW Only

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.8	1.200	1.4	3.000	2.3	7.000	3.5
0.200	0.7	1.400	1.6	3.500	2.5	7.500	3.6
0.300	0.7	1.600	1.7	4.000	2.6	8.000	3.7
0.400	0.8	1.800	1.8	4.500	2.8	8.500	3.8
0.500	0.9	2.000	1.9	5.000	2.9	9.000	3.9
0.600	1.0	2.200	1.9	5.500	3.1	9.500	4.1
0.800	1.2	2.400	2.0	6.000	3.2		
1.000	1.3	2.600	2.1	6.500	3.4		

Simpson Associates		Page 1
1 Market Place Mews Henley-on-Thames RG9 2AH	Premier Inn, Bicester Tank 1 in 100 yr + 30%	
Date 19.12.2011 File Tank.srcx	Designed By MRR Checked By	
Micro Drainage	Source Control W.12.4	


Summary of Results for 30 year Return Period

Half Drain Time : 157 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (1/s)	Max Control (1/s)	Max $\Sigma$ Outflow (1/s)	Max Volume (m <sup>3</sup> )	Status
15 min Summer	66.284	0.104	0.0	0.8	0.8	7.1	O K
30 min Summer	66.311	0.131	0.0	0.8	0.8	9.0	O K
60 min Summer	66.333	0.153	0.0	0.8	0.8	10.4	O K
120 min Summer	66.339	0.159	0.0	0.8	0.8	10.9	O K
180 min Summer	66.333	0.153	0.0	0.8	0.8	10.5	O K
240 min Summer	66.327	0.147	0.0	0.8	0.8	10.0	O K
360 min Summer	66.315	0.135	0.0	0.8	0.8	9.2	O K
480 min Summer	66.304	0.124	0.0	0.8	0.8	8.5	O K
600 min Summer	66.292	0.112	0.0	0.8	0.8	7.7	O K
720 min Summer	66.281	0.101	0.0	0.8	0.8	6.9	O K
960 min Summer	66.260	0.080	0.0	0.8	0.8	5.5	O K
1440 min Summer	66.227	0.047	0.0	0.8	0.8	3.2	O K
2160 min Summer	66.199	0.019	0.0	0.7	0.7	1.3	O K
2880 min Summer	66.186	0.006	0.0	0.7	0.7	0.4	O K
4320 min Summer	66.180	0.000	0.0	0.5	0.5	0.0	O K
5760 min Summer	66.180	0.000	0.0	0.4	0.4	0.0	O K
7200 min Summer	66.180	0.000	0.0	0.4	0.4	0.0	O K
8640 min Summer	66.180	0.000	0.0	0.3	0.3	0.0	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	76.035	24
30 min Summer	49.499	38
60 min Summer	30.811	66
120 min Summer	18.615	120
180 min Summer	13.715	154
240 min Summer	10.995	186
360 min Summer	8.034	252
480 min Summer	6.428	320
600 min Summer	5.404	386
720 min Summer	4.687	452
960 min Summer	3.743	578
1440 min Summer	2.723	814
2160 min Summer	1.979	1152
2880 min Summer	1.577	1500
4320 min Summer	1.143	0
5760 min Summer	0.910	0
7200 min Summer	0.762	0
8640 min Summer	0.659	0



Simpson Associates		Page 2
1 Market Place Mews Henley-on-Thames RG9 2AH	Premier Inn, Bicester Tank 1 in 100 yr + 30%	
Date 19.12.2011 File Tank.srcx	Designed By MRR Checked By	
Micro Drainage	Source Control W.12.4	

Summary of Results for 30 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max $\Sigma$ Outflow (l/s)	Max Volume (m <sup>3</sup> )	Status
10080 min Summer	66.180	0.000	0.0	0.3	0.3	0.0	O K
15 min Winter	66.298	0.118	0.0	0.8	0.8	8.1	O K
30 min Winter	66.330	0.150	0.0	0.8	0.8	10.3	O K
60 min Winter	66.356	0.176	0.0	0.8	0.8	12.1	O K
120 min Winter	66.368	0.188	0.0	0.8	0.8	12.9	O K
180 min Winter	66.363	0.183	0.0	0.8	0.8	12.5	O K
240 min Winter	66.353	0.173	0.0	0.8	0.8	11.9	O K
360 min Winter	66.337	0.157	0.0	0.8	0.8	10.7	O K
480 min Winter	66.320	0.140	0.0	0.8	0.8	9.6	O K
600 min Winter	66.302	0.122	0.0	0.8	0.8	8.4	O K
720 min Winter	66.285	0.105	0.0	0.8	0.8	7.2	O K
960 min Winter	66.252	0.072	0.0	0.8	0.8	5.0	O K
1440 min Winter	66.209	0.029	0.0	0.8	0.8	2.0	O K
2160 min Winter	66.183	0.003	0.0	0.6	0.6	0.2	O K
2880 min Winter	66.180	0.000	0.0	0.5	0.5	0.0	O K
4320 min Winter	66.180	0.000	0.0	0.4	0.4	0.0	O K
5760 min Winter	66.180	0.000	0.0	0.3	0.3	0.0	O K
7200 min Winter	66.180	0.000	0.0	0.3	0.3	0.0	O K
8640 min Winter	66.180	0.000	0.0	0.2	0.2	0.0	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
10080 min Summer	0.583	0
15 min Winter	76.035	25
30 min Winter	49.499	38
60 min Winter	30.811	66
120 min Winter	18.615	120
180 min Winter	13.715	174
240 min Winter	10.995	198
360 min Winter	8.034	274
480 min Winter	6.428	348
600 min Winter	5.404	420
720 min Winter	4.687	488
960 min Winter	3.743	614
1440 min Winter	2.723	832
2160 min Winter	1.979	1148
2880 min Winter	1.577	0
4320 min Winter	1.143	0
5760 min Winter	0.910	0
7200 min Winter	0.762	0
8640 min Winter	0.659	0

1 Market Place Mews  
Henley-on-Thames  
RG9 2AH

Premier Inn, Bicester  
Tank  
1 in 100 yr + 30%



Date 19.12.2011  
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Micro Drainage

Source Control W.12.4

Summary of Results for 30 year Return Period

<b>Storm Event</b>	<b>Max Level (m)</b>	<b>Max Depth (m)</b>	<b>Max Infiltration (l/s)</b>	<b>Max Control (l/s)</b>	<b>Max Σ Outflow (l/s)</b>	<b>Max Volume (m<sup>3</sup>)</b>	<b>Status</b>
10080 min Winter	66.180	0.000	0.0	0.2	0.2	0.0	O K
		<b>Storm Event</b>	<b>Rain (mm/hr)</b>	<b>Time-Peak (mins)</b>			
		10080 min Winter	0.583	0			

1 Market Place Mews  
Henley-on-Thames  
RG9 2AH

Premier Inn, Bicester  
Tank  
1 in 100 yr + 30%



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Micro Drainage

Source Control W.12.4

#### Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	30	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

#### Time / Area Diagram

Total Area (ha) 0.057

<b>Time (mins)</b>	<b>Area (ha)</b>	<b>Time (mins)</b>	<b>Area (ha)</b>	<b>Time (mins)</b>	<b>Area (ha)</b>
0-4	0.019	4-8	0.019	8-12	0.019

1 Market Place Mews  
 Henley-on-Thames  
 RG9 2AH

Premier Inn, Bicester  
 Tank  
 1 in 100 yr + 30%



Date 19.12.2011  
 File Tank.srcx

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Micro Drainage

Source Control W.12.4

Model Details

Storage is Online Cover Level (m) 67.200

Cellular Storage Structure


Invert Level (m) 66.180 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 <sup>2</sup> )	Inf. Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )	Inf. Area (m <sup>2</sup> )
0.000	72.0	72.0	0.500	0.0	88.4
0.400	72.0	88.4			

Hydro-Brake® Outflow Control

Design Head (m) 1.000 Diameter (mm) 48  
 Design Flow (l/s) 1.3 Invert Level (m) 66.120  
 Hydro-Brake® Type Md6 SW Only

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.8	1.200	1.4	3.000	2.3	7.000	3.5
0.200	0.7	1.400	1.6	3.500	2.5	7.500	3.6
0.300	0.7	1.600	1.7	4.000	2.6	8.000	3.7
0.400	0.8	1.800	1.8	4.500	2.8	8.500	3.8
0.500	0.9	2.000	1.9	5.000	2.9	9.000	3.9
0.600	1.0	2.200	1.9	5.500	3.1	9.500	4.1
0.800	1.2	2.400	2.0	6.000	3.2		
1.000	1.3	2.600	2.1	6.500	3.4		


Simpson Associates		Page 1
1 Market Place Mews Henley-on-Thames RG9 2AH	Premier Inn, Bicester Tank 1 in 100 yr + 30%	
Date 19.12.2011 File Tank.srcx	Designed By MRR Checked By	
Micro Drainage	Source Control W.12.4	

Summary of Results for 100 year Return Period

Half Drain Time : 218 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (1/s)	Max Control (1/s)	Max $\Sigma$ Outflow (1/s)	Max Volume (m <sup>3</sup> )	Status
15 min Summer	66.319	0.139	0.0	0.8	0.8	9.5	O K
30 min Summer	66.359	0.179	0.0	0.8	0.8	12.2	O K
60 min Summer	66.392	0.212	0.0	0.8	0.8	14.5	O K
120 min Summer	66.409	0.229	0.0	0.8	0.8	15.7	O K
180 min Summer	66.406	0.226	0.0	0.8	0.8	15.4	O K
240 min Summer	66.397	0.217	0.0	0.8	0.8	14.8	O K
360 min Summer	66.382	0.202	0.0	0.8	0.8	13.8	O K
480 min Summer	66.370	0.190	0.0	0.8	0.8	13.0	O K
600 min Summer	66.358	0.178	0.0	0.8	0.8	12.2	O K
720 min Summer	66.346	0.166	0.0	0.8	0.8	11.3	O K
960 min Summer	66.322	0.142	0.0	0.8	0.8	9.7	O K
1440 min Summer	66.279	0.099	0.0	0.8	0.8	6.7	O K
2160 min Summer	66.230	0.050	0.0	0.8	0.8	3.4	O K
2880 min Summer	66.203	0.023	0.0	0.7	0.7	1.6	O K
4320 min Summer	66.183	0.003	0.0	0.6	0.6	0.2	O K
5760 min Summer	66.180	0.000	0.0	0.5	0.5	0.0	O K
7200 min Summer	66.180	0.000	0.0	0.4	0.4	0.0	O K
8640 min Summer	66.180	0.000	0.0	0.4	0.4	0.0	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	98.681	25
30 min Summer	64.789	39
60 min Summer	40.510	66
120 min Summer	24.461	124
180 min Summer	17.964	178
240 min Summer	14.342	204
360 min Summer	10.418	268
480 min Summer	8.302	336
600 min Summer	6.956	404
720 min Summer	6.017	472
960 min Summer	4.784	606
1440 min Summer	3.456	858
2160 min Summer	2.493	1196
2880 min Summer	1.975	1532
4320 min Summer	1.421	2208
5760 min Summer	1.124	0
7200 min Summer	0.936	0
8640 min Summer	0.806	0

Simpson Associates		Page 2
1 Market Place Mews Henley-on-Thames RG9 2AH	Premier Inn, Bicester Tank 1 in 100 yr + 30%	
Date 19.12.2011 File Tank.srcx	Designed By MRR Checked By	
Micro Drainage	Source Control W.12.4	

Summary of Results for 100 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max $\Sigma$ Outflow (l/s)	Max Volume (m <sup>3</sup> )	Status
10080 min Summer	66.180	0.000	0.0	0.3	0.3	0.0	O K
15 min Winter	66.337	0.157	0.0	0.8	0.8	10.8	O K
30 min Winter	66.383	0.203	0.0	0.8	0.8	13.9	O K
60 min Winter	66.423	0.243	0.0	0.8	0.8	16.6	O K
120 min Winter	66.447	0.267	0.0	0.8	0.8	18.2	O K
<b>180 min Winter</b>	<b>66.447</b>	<b>0.267</b>	<b>0.0</b>	<b>0.8</b>	<b>0.8</b>	<b>18.2</b>	<b>O K</b>
240 min Winter	66.438	0.258	0.0	0.8	0.8	17.6	O K
360 min Winter	66.417	0.237	0.0	0.8	0.8	16.2	O K
480 min Winter	66.400	0.220	0.0	0.8	0.8	15.1	O K
600 min Winter	66.383	0.203	0.0	0.8	0.8	13.9	O K
720 min Winter	66.365	0.185	0.0	0.8	0.8	12.6	O K
960 min Winter	66.329	0.149	0.0	0.8	0.8	10.2	O K
1440 min Winter	66.262	0.082	0.0	0.8	0.8	5.6	O K
2160 min Winter	66.203	0.023	0.0	0.7	0.7	1.6	O K
2880 min Winter	66.184	0.004	0.0	0.6	0.6	0.2	O K
4320 min Winter	66.180	0.000	0.0	0.5	0.5	0.0	O K
5760 min Winter	66.180	0.000	0.0	0.4	0.4	0.0	O K
7200 min Winter	66.180	0.000	0.0	0.3	0.3	0.0	O K
8640 min Winter	66.180	0.000	0.0	0.3	0.3	0.0	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
10080 min Summer	0.710	0
15 min Winter	98.681	25
30 min Winter	64.789	39
60 min Winter	40.510	66
120 min Winter	24.461	122
<b>180 min Winter</b>	<b>17.964</b>	<b>178</b>
240 min Winter	14.342	228
360 min Winter	10.418	286
480 min Winter	8.302	362
600 min Winter	6.956	438
720 min Winter	6.017	514
960 min Winter	4.784	656
1440 min Winter	3.456	902
2160 min Winter	2.493	1208
2880 min Winter	1.975	1508
4320 min Winter	1.421	0
5760 min Winter	1.124	0
7200 min Winter	0.936	0
8640 min Winter	0.806	0

1 Market Place Mews  
Henley-on-Thames  
RG9 2AH

Premier Inn, Bicester  
Tank  
1 in 100 yr + 30%



Date 19.12.2011  
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Micro Drainage

Source Control W.12.4

Summary of Results for 100 year Return Period

<b>Storm Event</b>	<b>Max Level (m)</b>	<b>Max Depth (m)</b>	<b>Max Infiltration (l/s)</b>	<b>Max Control (l/s)</b>	<b>Max <math>\Sigma</math> Outflow (l/s)</b>	<b>Max Volume (m<sup>3</sup>)</b>	<b>Status</b>
10080 min Winter	66.180	0.000	0.0	0.2	0.2	0.0	O K
		<b>Storm Event</b>	<b>Rain (mm/hr)</b>	<b>Time-Peak (mins)</b>			
		10080 min Winter	0.710	0			

1 Market Place Mews  
Henley-on-Thames  
RG9 2AH

Premier Inn, Bicester  
Tank  
1 in 100 yr + 30%



Date 19.12.2011  
File Tank.srcx

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Micro Drainage

Source Control W.12.4

#### Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

#### Time / Area Diagram

Total Area (ha) 0.057

<b>Time (mins)</b>	<b>Area (ha)</b>	<b>Time (mins)</b>	<b>Area (ha)</b>	<b>Time (mins)</b>	<b>Area (ha)</b>
0-4	0.019	4-8	0.019	8-12	0.019



1 Market Place Mews  
Henley-on-Thames  
RG9 2AH

Premier Inn, Bicester  
Tank  
1 in 100 yr + 30%



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Micro Drainage

Source Control W.12.4

Model Details

Storage is Online Cover Level (m) 67.200

Cellular Storage Structure


Invert Level (m) 66.180 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 <sup>2</sup> )	Inf. Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )	Inf. Area (m <sup>2</sup> )
0.000	72.0	72.0	0.500	0.0	88.4
0.400	72.0	88.4			

Hydro-Brake® Outflow Control

Design Head (m) 1.000 Diameter (mm) 48  
Design Flow (l/s) 1.3 Invert Level (m) 66.120  
Hydro-Brake® Type Md6 SW Only

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.8	1.200	1.4	3.000	2.3	7.000	3.5
0.200	0.7	1.400	1.6	3.500	2.5	7.500	3.6
0.300	0.7	1.600	1.7	4.000	2.6	8.000	3.7
0.400	0.8	1.800	1.8	4.500	2.8	8.500	3.8
0.500	0.9	2.000	1.9	5.000	2.9	9.000	3.9
0.600	1.0	2.200	1.9	5.500	3.1	9.500	4.1
0.800	1.2	2.400	2.0	6.000	3.2		
1.000	1.3	2.600	2.1	6.500	3.4		


Simpson Associates		Page 1
1 Market Place Mews Henley-on-Thames RG9 2AH	Premier Inn, Bicester Tank 1 in 100 yr + 30%	
Date 19.12.2011 File Tank.srcx	Designed By MRR Checked By	
Micro Drainage	Source Control W.12.4	

Summary of Results for 100 year Return Period (+30%)

Half Drain Time : 281 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (1/s)	Max Control (1/s)	Max $\Sigma$ Outflow (1/s)	Max Volume (m <sup>3</sup> )	Status
15 min Summer	66.365	0.185	0.0	0.8	0.8	12.6	O K
30 min Summer	66.419	0.239	0.0	0.8	0.8	16.3	O K
60 min Summer	66.466	0.286	0.0	0.8	0.8	19.5	O K
120 min Summer	66.496	0.316	0.0	0.8	0.8	21.6	O K
180 min Summer	66.499	0.319	0.0	0.8	0.8	21.8	O K
240 min Summer	66.491	0.311	0.0	0.8	0.8	21.3	O K
360 min Summer	66.474	0.294	0.0	0.8	0.8	20.1	O K
480 min Summer	66.460	0.280	0.0	0.8	0.8	19.2	O K
600 min Summer	66.448	0.268	0.0	0.8	0.8	18.3	O K
720 min Summer	66.435	0.255	0.0	0.8	0.8	17.5	O K
960 min Summer	66.412	0.232	0.0	0.8	0.8	15.9	O K
1440 min Summer	66.368	0.188	0.0	0.8	0.8	12.8	O K
2160 min Summer	66.305	0.125	0.0	0.8	0.8	8.6	O K
2880 min Summer	66.254	0.074	0.0	0.8	0.8	5.0	O K
4320 min Summer	66.202	0.022	0.0	0.7	0.7	1.5	O K
5760 min Summer	66.185	0.005	0.0	0.7	0.7	0.3	O K
7200 min Summer	66.180	0.000	0.0	0.6	0.6	0.0	O K
8640 min Summer	66.180	0.000	0.0	0.5	0.5	0.0	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	128.285	25
30 min Summer	84.226	39
60 min Summer	52.662	68
120 min Summer	31.800	124
180 min Summer	23.353	182
240 min Summer	18.644	224
360 min Summer	13.543	286
480 min Summer	10.792	350
600 min Summer	9.043	418
720 min Summer	7.823	488
960 min Summer	6.219	624
1440 min Summer	4.493	896
2160 min Summer	3.241	1276
2880 min Summer	2.568	1616
4320 min Summer	1.847	2256
5760 min Summer	1.461	2944
7200 min Summer	1.217	0
8640 min Summer	1.048	0

Simpson Associates		Page 2
1 Market Place Mews Henley-on-Thames RG9 2AH	Premier Inn, Bicester Tank 1 in 100 yr + 30%	
Date 19.12.2011 File Tank.srcx	Designed By MRR Checked By	
Micro Drainage	Source Control W.12.4	

Summary of Results for 100 year Return Period (+30%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max $\Sigma$ Outflow (l/s)	Max Volume (m <sup>3</sup> )	Status
10080 min Summer	66.180	0.000	0.0	0.4	0.4	0.0	O K
15 min Winter	66.389	0.209	0.0	0.8	0.8	14.3	O K
30 min Winter	66.450	0.270	0.0	0.8	0.8	18.5	O K
60 min Winter	66.505	0.325	0.0	0.8	0.8	22.3	O K
120 min Winter	66.544	0.364	0.0	0.9	0.9	24.9	O K
<b>180 min Winter</b>	<b>66.552</b>	<b>0.372</b>	<b>0.0</b>	<b>0.9</b>	<b>0.9</b>	<b>25.4</b>	<b>O K</b>
240 min Winter	66.547	0.367	0.0	0.9	0.9	25.1	O K
360 min Winter	66.526	0.346	0.0	0.8	0.8	23.7	O K
480 min Winter	66.508	0.328	0.0	0.8	0.8	22.4	O K
600 min Winter	66.490	0.310	0.0	0.8	0.8	21.2	O K
720 min Winter	66.473	0.293	0.0	0.8	0.8	20.0	O K
960 min Winter	66.439	0.259	0.0	0.8	0.8	17.7	O K
1440 min Winter	66.371	0.191	0.0	0.8	0.8	13.1	O K
2160 min Winter	66.275	0.095	0.0	0.8	0.8	6.5	O K
2880 min Winter	66.214	0.034	0.0	0.8	0.8	2.3	O K
4320 min Winter	66.181	0.001	0.0	0.6	0.6	0.0	O K
5760 min Winter	66.180	0.000	0.0	0.5	0.5	0.0	O K
7200 min Winter	66.180	0.000	0.0	0.4	0.4	0.0	O K
8640 min Winter	66.180	0.000	0.0	0.4	0.4	0.0	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
10080 min Summer	0.923	0
15 min Winter	128.285	25
30 min Winter	84.226	39
60 min Winter	52.662	66
120 min Winter	31.800	122
<b>180 min Winter</b>	<b>23.353</b>	<b>178</b>
240 min Winter	18.644	234
360 min Winter	13.543	298
480 min Winter	10.792	372
600 min Winter	9.043	450
720 min Winter	7.823	528
960 min Winter	6.219	678
1440 min Winter	4.493	966
2160 min Winter	3.241	1328
2880 min Winter	2.568	1616
4320 min Winter	1.847	2208
5760 min Winter	1.461	0
7200 min Winter	1.217	0
8640 min Winter	1.048	0

1 Market Place Mews  
 Henley-on-Thames  
 RG9 2AH

Premier Inn, Bicester  
 Tank  
 1 in 100 yr + 30%



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Source Control W.12.4

Summary of Results for 100 year Return Period (+30%)

<b>Storm Event</b>	<b>Max Level (m)</b>	<b>Max Depth (m)</b>	<b>Max Infiltration (l/s)</b>	<b>Max Control (l/s)</b>	<b>Max Σ Outflow (l/s)</b>	<b>Max Volume (m³)</b>	<b>Status</b>
10080 min Winter	66.180	0.000	0.0	0.3	0.3	0.0	O K

<b>Storm Event</b>	<b>Rain (mm/hr)</b>	<b>Time-Peak (mins)</b>
10080 min Winter	0.923	0

1 Market Place Mews  
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#### Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

#### Time / Area Diagram

Total Area (ha) 0.057

<b>Time (mins)</b>	<b>Area (ha)</b>	<b>Time (mins)</b>	<b>Area (ha)</b>	<b>Time (mins)</b>	<b>Area (ha)</b>
0-4	0.019	4-8	0.019	8-12	0.019

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Model Details

Storage is Online Cover Level (m) 67.200

Cellular Storage Structure

Invert Level (m) 66.180 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 <sup>2</sup> )	Inf. Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )	Inf. Area (m <sup>2</sup> )
0.000	72.0	72.0	0.500	0.0	88.4
0.400	72.0	88.4			

Hydro-Brake® Outflow Control

Design Head (m) 1.000 Diameter (mm) 48  
 Design Flow (l/s) 1.3 Invert Level (m) 66.120  
 Hydro-Brake® Type Md6 SW Only

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.8	1.200	1.4	3.000	2.3	7.000	3.5
0.200	0.7	1.400	1.6	3.500	2.5	7.500	3.6
0.300	0.7	1.600	1.7	4.000	2.6	8.000	3.7
0.400	0.8	1.800	1.8	4.500	2.8	8.500	3.8
0.500	0.9	2.000	1.9	5.000	2.9	9.000	3.9
0.600	1.0	2.200	1.9	5.500	3.1	9.500	4.1
0.800	1.2	2.400	2.0	6.000	3.2		
1.000	1.3	2.600	2.1	6.500	3.4		