

BEAL Consulting Engineers Ltd

Chiltern House
Thame Road
Haddenham Bucks HP17 8BY

Date 30/08/2024 08:53
File BLACKMORE WAY _35MM ORI...

XP Solutions

Designed by Stuart Chapman
Checked by

Source Control 2015.1

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

Half Drain Time : 77 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
15 min Summer	0.265	0.265	0.0	1.3	1.3	7.2	Flood Risk
30 min Summer	0.313	0.313	0.0	1.4	1.4	9.0	Flood Risk
60 min Summer	0.341	0.341	0.0	1.5	1.5	10.0	Flood Risk
120 min Summer	0.345	0.345	0.0	1.5	1.5	10.2	Flood Risk
180 min Summer	0.335	0.335	0.0	1.4	1.4	9.8	Flood Risk
240 min Summer	0.321	0.321	0.0	1.4	1.4	9.3	Flood Risk
360 min Summer	0.293	0.293	0.0	1.3	1.3	8.2	Flood Risk
480 min Summer	0.268	0.268	0.0	1.3	1.3	7.3	Flood Risk
600 min Summer	0.247	0.247	0.0	1.2	1.2	6.5	Flood Risk
720 min Summer	0.228	0.228	0.0	1.2	1.2	5.8	O K
960 min Summer	0.197	0.197	0.0	1.1	1.1	4.6	O K
1440 min Summer	0.154	0.154	0.0	0.9	0.9	3.0	O K
2160 min Summer	0.114	0.114	0.0	0.8	0.8	1.6	O K
2880 min Summer	0.088	0.088	0.0	0.7	0.7	1.0	O K
4320 min Summer	0.059	0.059	0.0	0.5	0.5	0.4	O K
5760 min Summer	0.046	0.046	0.0	0.4	0.4	0.3	O K
7200 min Summer	0.041	0.041	0.0	0.3	0.3	0.2	O K
8640 min Summer	0.037	0.037	0.0	0.3	0.3	0.2	O K
10080 min Summer	0.034	0.034	0.0	0.3	0.3	0.1	O K
15 min Winter	0.292	0.292	0.0	1.3	1.3	8.2	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	139.755	0.0	8.0	17
30 min Summer	91.475	0.0	10.7	31
60 min Summer	57.005	0.0	13.5	56
120 min Summer	34.310	0.0	16.3	88
180 min Summer	25.153	0.0	18.0	122
240 min Summer	20.060	0.0	19.2	156
360 min Summer	14.548	0.0	20.9	224
480 min Summer	11.581	0.0	22.2	290
600 min Summer	9.696	0.0	23.2	354
720 min Summer	8.382	0.0	24.1	418
960 min Summer	6.656	0.0	25.5	540
1440 min Summer	4.803	0.0	27.5	780
2160 min Summer	3.460	0.0	29.6	1128
2880 min Summer	2.739	0.0	31.2	1472
4320 min Summer	1.968	0.0	33.3	2204
5760 min Summer	1.555	0.0	34.8	2936
7200 min Summer	1.294	0.0	35.9	3672
8640 min Summer	1.114	0.0	36.8	4280
10080 min Summer	0.981	0.0	37.5	4984
15 min Winter	139.755	0.0	9.1	17

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<u>Rainfall Details</u>								
Rainfall Model Return Period (years) Region M5-60 (mm) Ratio R Summer Storms	FSR 100 England and Wales 20.100 0.407 Yes	Winter Storms Yes Cv (Summer) 0.750 Cv (Winter) 0.840 Shortest Storm (mins) 15 Longest Storm (mins) 10080 Climate Change % +40						
<u>Time Area Diagram</u>								
Total Area (ha) 0.033								
<table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">Time (mins)</th> <th style="text-align: left;">Area</th> </tr> <tr> <th style="text-align: left;">From:</th> <th style="text-align: left;">To: (ha)</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">0</td> <td style="text-align: left;">4 0.033</td> </tr> </tbody> </table>			Time (mins)	Area	From:	To: (ha)	0	4 0.033
Time (mins)	Area							
From:	To: (ha)							
0	4 0.033							
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<u>Model Details</u> Storage is Online Cover Level (m) 0.540 <u>Porous Car Park Structure</u> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Infiltration Coefficient Base (m/hr) 0.00000</td> <td style="width: 50%;">Width (m) 7.0</td> </tr> <tr> <td>Membrane Percolation (mm/hr) 1000</td> <td>Length (m) 18.0</td> </tr> <tr> <td>Max Percolation (l/s) 35.0</td> <td>Slope (1:X) 120.0</td> </tr> <tr> <td>Safety Factor 2.0</td> <td>Depression Storage (mm) 5</td> </tr> <tr> <td>Porosity 0.30</td> <td>Evaporation (mm/day) 3</td> </tr> <tr> <td>Invert Level (m) 0.000</td> <td>Cap Volume Depth (m) 0.000</td> </tr> </table> <u>Orifice Outflow Control</u> Diameter (m) 0.035 Discharge Coefficient 0.600 Invert Level (m) 0.000			Infiltration Coefficient Base (m/hr) 0.00000	Width (m) 7.0	Membrane Percolation (mm/hr) 1000	Length (m) 18.0	Max Percolation (l/s) 35.0	Slope (1:X) 120.0	Safety Factor 2.0	Depression Storage (mm) 5	Porosity 0.30	Evaporation (mm/day) 3	Invert Level (m) 0.000	Cap Volume Depth (m) 0.000
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