

CTP House, Knapp Road  
Cheltenham  
Gloucestershire, GL50 3QQ

HILLYFIELDS  
PLOT 3  
STORAGE CALCS



Date 02/07/2023  
File Plot 3 Calcs.SRCX

Designed by KT  
Checked by KT

Innovyze Source Control 2020.1.3

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

Half Drain Time : 177 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max E Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	36.865	0.365	0.0	0.5	0.5	6.2	O K
30 min Summer	36.972	0.472	0.0	0.6	0.6	8.1	O K
60 min Summer	37.067	0.567	0.0	0.6	0.6	9.7	O K
120 min Summer	37.123	0.623	0.0	0.7	0.7	10.7	O K
180 min Summer	37.134	0.634	0.0	0.7	0.7	10.8	O K
240 min Summer	37.133	0.633	0.0	0.7	0.7	10.8	O K
360 min Summer	37.119	0.619	0.0	0.7	0.7	10.6	O K
480 min Summer	37.098	0.598	0.0	0.6	0.6	10.2	O K
600 min Summer	37.075	0.575	0.0	0.6	0.6	9.8	O K
720 min Summer	37.051	0.551	0.0	0.6	0.6	9.4	O K
960 min Summer	37.006	0.506	0.0	0.6	0.6	8.7	O K
1440 min Summer	36.929	0.429	0.0	0.5	0.5	7.3	O K
2160 min Summer	36.843	0.343	0.0	0.5	0.5	5.9	O K
2880 min Summer	36.781	0.281	0.0	0.4	0.4	4.8	O K
4320 min Summer	36.700	0.200	0.0	0.4	0.4	3.4	O K
5760 min Summer	36.650	0.150	0.0	0.3	0.3	2.6	O K
7200 min Summer	36.618	0.118	0.0	0.3	0.3	2.0	O K
8640 min Summer	36.596	0.096	0.0	0.2	0.2	1.6	O K
10080 min Summer	36.581	0.081	0.0	0.2	0.2	1.4	O K
15 min Winter	36.910	0.410	0.0	0.5	0.5	7.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	129.651	0.0	6.5	18
30 min Summer	86.434	0.0	8.7	33
60 min Summer	54.957	0.0	11.1	62
120 min Summer	33.743	0.0	13.7	116
180 min Summer	25.003	0.0	15.2	144
240 min Summer	20.075	0.0	16.3	176
360 min Summer	14.696	0.0	17.8	244
480 min Summer	11.774	0.0	19.1	314
600 min Summer	9.906	0.0	20.0	382
720 min Summer	8.598	0.0	20.9	450
960 min Summer	6.870	0.0	22.2	580
1440 min Summer	4.998	0.0	24.3	838
2160 min Summer	3.630	0.0	26.5	1212
2880 min Summer	2.889	0.0	28.1	1584
4320 min Summer	2.091	0.0	30.5	2292
5760 min Summer	1.660	0.0	32.3	3000
7200 min Summer	1.387	0.0	33.7	3744
8640 min Summer	1.198	0.0	34.9	4416
10080 min Summer	1.059	0.0	36.0	5144
15 min Winter	129.651	0.0	7.3	18

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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
30 min Winter	37.032	0.532	0.0	0.6	0.6	9.1	O K
60 min Winter	37.141	0.641	0.0	0.7	0.7	11.0	O K
120 min Winter	37.212	0.712	0.0	0.7	0.7	12.2	O K
180 min Winter	37.220	0.720	0.0	0.7	0.7	12.3	O K
240 min Winter	37.217	0.717	0.0	0.7	0.7	12.3	O K
360 min Winter	37.194	0.694	0.0	0.7	0.7	11.9	O K
480 min Winter	37.161	0.661	0.0	0.7	0.7	11.3	O K
600 min Winter	37.126	0.626	0.0	0.7	0.7	10.7	O K
720 min Winter	37.090	0.590	0.0	0.6	0.6	10.1	O K
960 min Winter	37.024	0.524	0.0	0.6	0.6	9.0	O K
1440 min Winter	36.917	0.417	0.0	0.5	0.5	7.1	O K
2160 min Winter	36.806	0.306	0.0	0.5	0.5	5.2	O K
2880 min Winter	36.733	0.233	0.0	0.4	0.4	4.0	O K
4320 min Winter	36.648	0.148	0.0	0.3	0.3	2.5	O K
5760 min Winter	36.603	0.103	0.0	0.3	0.3	1.8	O K
7200 min Winter	36.577	0.077	0.0	0.2	0.2	1.3	O K
8640 min Winter	36.561	0.061	0.0	0.2	0.2	1.0	O K
10080 min Winter	36.550	0.050	0.0	0.2	0.2	0.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
30 min Winter	86.434	0.0	9.8	32
60 min Winter	54.957	0.0	12.5	60
120 min Winter	33.743	0.0	15.3	116
180 min Winter	25.003	0.0	17.0	154
240 min Winter	20.075	0.0	18.2	186
360 min Winter	14.696	0.0	20.0	264
480 min Winter	11.774	0.0	21.4	338
600 min Winter	9.906	0.0	22.5	412
720 min Winter	8.598	0.0	23.4	484
960 min Winter	6.870	0.0	24.9	624
1440 min Winter	4.998	0.0	27.2	882
2160 min Winter	3.630	0.0	29.6	1256
2880 min Winter	2.889	0.0	31.4	1620
4320 min Winter	2.091	0.0	34.1	2336
5760 min Winter	1.660	0.0	36.1	3056
7200 min Winter	1.387	0.0	37.8	3744
8640 min Winter	1.198	0.0	39.1	4488
10080 min Winter	1.059	0.0	40.3	5144

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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)	19.400	Shortest Storm (mins)	15
Ratio R	0.367	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.027

Time (mins)	Area
From:	To: (ha)
0	4 0.027

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Model Details

Storage is Online Cover Level (m) 38.200

Cellular Storage Structure

Invert Level (m) 36.500 Safety Factor 2.0  
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95  
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m <sup>2</sup> )	Inf. Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )	Inf. Area (m <sup>2</sup> )
0.000	18.0	18.0	0.801	0.0	32.4
0.800	18.0	32.4			

Orifice Outflow Control

Diameter (m) 0.020 Discharge Coefficient 0.600 Invert Level (m) 36.500