G30 CONSULTING

Surface Water Attenuation Calculations

Land Adjacent 2 Evelyns Close, Hillingdon

Inspired Design & Build Ltd

18th January 2021

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

Half Drain Time : 17 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	9.316	0.316	0.0	1.0	1.0	1.5	O K
30 min Summer	9.354	0.354	0.0	1.1	1.1	1.7	O K
60 min Summer	9.349	0.349	0.0	1.1	1.1	1.7	O K
120 min Summer	9.298	0.298	0.0	1.0	1.0	1.4	O K
180 min Summer	9.250	0.250	0.0	0.9	0.9	1.2	O K
240 min Summer	9.211	0.211	0.0	0.8	0.8	1.0	O K
360 min Summer	9.158	0.158	0.0	0.7	0.7	0.7	O K
480 min Summer	9.124	0.124	0.0	0.6	0.6	0.6	O K
600 min Summer	9.100	0.100	0.0	0.5	0.5	0.5	O K
720 min Summer	9.084	0.084	0.0	0.5	0.5	0.4	O K
960 min Summer	9.063	0.063	0.0	0.4	0.4	0.3	O K
1440 min Summer	9.043	0.043	0.0	0.3	0.3	0.2	O K
2160 min Summer	9.034	0.034	0.0	0.2	0.2	0.2	O K
2880 min Summer	9.030	0.030	0.0	0.2	0.2	0.1	O K
4320 min Summer	9.024	0.024	0.0	0.1	0.1	0.1	O K
5760 min Summer	9.021	0.021	0.0	0.1	0.1	0.1	O K
7200 min Summer	9.018	0.018	0.0	0.1	0.1	0.1	O K
8640 min Summer	9.017	0.017	0.0	0.1	0.1	0.1	O K
10080 min Summer	9.016	0.016	0.0	0.1	0.1	0.1	O K
15 min Winter	9.357	0.357	0.0	1.1	1.1	1.7	O K
30 min Winter	9.397	0.397	0.0	1.2	1.2	1.9	O K
60 min Winter	9.379	0.379	0.0	1.1	1.1	1.8	O K
120 min Winter	9.299	0.299	0.0	1.0	1.0	1.4	O K
180 min Winter	9.233	0.233	0.0	0.9	0.9	1.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	138.274	0.0	2.1	15
30 min Summer	90.745	0.0	2.7	24
60 min Summer	56.713	0.0	3.4	40
120 min Summer	34.232	0.0	4.1	74
180 min Summer	25.134	0.0	4.5	106
240 min Summer	20.064	0.0	4.8	136
360 min Summer	14.571	0.0	5.2	196
480 min Summer	11.609	0.0	5.6	256
600 min Summer	9.726	0.0	5.8	316
720 min Summer	8.413	0.0	6.1	376
960 min Summer	6.687	0.0	6.4	492
1440 min Summer	4.831	0.0	7.0	734
2160 min Summer	3.484	0.0	7.5	1100
2880 min Summer	2.760	0.0	7.9	1468
4320 min Summer	1.985	0.0	8.6	2200
5760 min Summer	1.570	0.0	9.0	2936
7200 min Summer	1.308	0.0	9.4	3632
8640 min Summer	1.126	0.0	9.7	4256
10080 min Summer	0.992	0.0	10.0	5080
15 min Winter	138.274	0.0	2.3	16
30 min Winter	90.745	0.0	3.0	25
60 min Winter	56.713	0.0	3.8	44
120 min Winter	34.232	0.0	4.6	78
180 min Winter	25.134	0.0	5.1	110

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
240 min Winter	9.184	0.184	0.0	0.8	0.8	0.9	O K
360 min Winter	9.124	0.124	0.0	0.6	0.6	0.6	O K
480 min Winter	9.091	0.091	0.0	0.5	0.5	0.4	O K
600 min Winter	9.071	0.071	0.0	0.4	0.4	0.3	O K
720 min Winter	9.058	0.058	0.0	0.4	0.4	0.3	O K
960 min Winter	9.043	0.043	0.0	0.3	0.3	0.2	O K
1440 min Winter	9.034	0.034	0.0	0.2	0.2	0.2	O K
2160 min Winter	9.028	0.028	0.0	0.2	0.2	0.1	O K
2880 min Winter	9.025	0.025	0.0	0.1	0.1	0.1	O K
4320 min Winter	9.020	0.020	0.0	0.1	0.1	0.1	O K
5760 min Winter	9.017	0.017	0.0	0.1	0.1	0.1	O K
7200 min Winter	9.016	0.016	0.0	0.1	0.1	0.1	O K
8640 min Winter	9.015	0.015	0.0	0.1	0.1	0.1	O K
10080 min Winter	9.014	0.014	0.0	0.1	0.1	0.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
240 min Winter	20.064	0.0	5.4	140
360 min Winter	14.571	0.0	5.9	200
480 min Winter	11.609	0.0	6.2	260
600 min Winter	9.726	0.0	6.5	318
720 min Winter	8.413	0.0	6.8	376
960 min Winter	6.687	0.0	7.2	488
1440 min Winter	4.831	0.0	7.8	736
2160 min Winter	3.484	0.0	8.4	1088
2880 min Winter	2.760	0.0	8.9	1468
4320 min Winter	1.985	0.0	9.6	2184
5760 min Winter	1.570	0.0	10.1	2944
7200 min Winter	1.308	0.0	10.5	3488
8640 min Winter	1.126	0.0	10.9	4320
10080 min Winter	0.992	0.0	11.2	5072

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	0.401	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.008

Time (mins) From:	To:	Area (ha)
0	5	0.008

Model Details

Storage is Online Cover Level (m) 10.000

Cellular Storage Structure

Invert Level (m) 9.000 Safety Factor 1.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	5.0	5.0	0.400	5.0	13.0	0.401	0.0	13.0

Orifice Outflow Control

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