

Aire House
12 Victoria Avenue
Harrogate, HG1 1ED

Top Street, Askham



Date 14/04/2022
File

Designed by JS
Checked by RT

Innovyze Source Control 2019.1

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

Half Drain Time : 61 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	48.274	0.274	0.0	3.4	3.4	14.6	O K
30 min Summer	48.338	0.338	0.0	3.8	3.8	18.0	O K
60 min Summer	48.373	0.373	0.0	4.0	4.0	19.8	O K
120 min Summer	48.376	0.376	0.0	4.0	4.0	20.0	O K
180 min Summer	48.359	0.359	0.0	3.9	3.9	19.1	O K
240 min Summer	48.336	0.336	0.0	3.8	3.8	17.9	O K
360 min Summer	48.294	0.294	0.0	3.5	3.5	15.7	O K
480 min Summer	48.260	0.260	0.0	3.3	3.3	13.8	O K
600 min Summer	48.231	0.231	0.0	3.1	3.1	12.3	O K
720 min Summer	48.208	0.208	0.0	2.9	2.9	11.1	O K
960 min Summer	48.172	0.172	0.0	2.6	2.6	9.1	O K
1440 min Summer	48.126	0.126	0.0	2.1	2.1	6.7	O K
2160 min Summer	48.091	0.091	0.0	1.7	1.7	4.8	O K
2880 min Summer	48.076	0.076	0.0	1.4	1.4	4.0	O K
4320 min Summer	48.062	0.062	0.0	1.0	1.0	3.3	O K
5760 min Summer	48.053	0.053	0.0	0.8	0.8	2.8	O K
7200 min Summer	48.048	0.048	0.0	0.7	0.7	2.5	O K
8640 min Summer	48.044	0.044	0.0	0.6	0.6	2.3	O K
10080 min Summer	48.040	0.040	0.0	0.5	0.5	2.1	O K
15 min Winter	48.308	0.308	0.0	3.6	3.6	16.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	128.468	0.0	17.0	22
30 min Summer	84.070	0.0	22.3	33
60 min Summer	52.391	0.0	27.9	52
120 min Summer	31.545	0.0	33.6	86
180 min Summer	23.136	0.0	36.9	120
240 min Summer	18.460	0.0	39.3	154
360 min Summer	13.380	0.0	42.7	218
480 min Summer	10.651	0.0	45.3	282
600 min Summer	8.916	0.0	47.4	344
720 min Summer	7.708	0.0	49.2	406
960 min Summer	6.121	0.0	52.1	526
1440 min Summer	4.416	0.0	56.4	764
2160 min Summer	3.181	0.0	61.0	1116
2880 min Summer	2.518	0.0	64.3	1472
4320 min Summer	1.809	0.0	69.3	2204
5760 min Summer	1.429	0.0	73.0	2936
7200 min Summer	1.190	0.0	76.0	3672
8640 min Summer	1.024	0.0	78.5	4376
10080 min Summer	0.902	0.0	80.6	5136
15 min Winter	128.468	0.0	19.1	23

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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	48.382	0.382	0.0	4.0	4.0	20.3	O K
60 min Winter	48.427	0.427	0.0	4.3	4.3	22.4	O K
120 min Winter	48.419	0.419	0.0	4.2	4.2	22.1	O K
180 min Winter	48.387	0.387	0.0	4.1	4.1	20.6	O K
240 min Winter	48.353	0.353	0.0	3.9	3.9	18.8	O K
360 min Winter	48.293	0.293	0.0	3.5	3.5	15.6	O K
480 min Winter	48.247	0.247	0.0	3.2	3.2	13.1	O K
600 min Winter	48.210	0.210	0.0	2.9	2.9	11.2	O K
720 min Winter	48.182	0.182	0.0	2.7	2.7	9.7	O K
960 min Winter	48.141	0.141	0.0	2.3	2.3	7.5	O K
1440 min Winter	48.096	0.096	0.0	1.8	1.8	5.1	O K
2160 min Winter	48.072	0.072	0.0	1.3	1.3	3.8	O K
2880 min Winter	48.062	0.062	0.0	1.1	1.1	3.3	O K
4320 min Winter	48.051	0.051	0.0	0.8	0.8	2.7	O K
5760 min Winter	48.044	0.044	0.0	0.6	0.6	2.3	O K
7200 min Winter	48.039	0.039	0.0	0.5	0.5	2.0	O K
8640 min Winter	48.035	0.035	0.0	0.4	0.4	1.8	O K
10080 min Winter	48.032	0.032	0.0	0.4	0.4	1.7	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
30 min Winter	84.070	0.0	25.0	34
60 min Winter	52.391	0.0	31.2	56
120 min Winter	31.545	0.0	37.6	92
180 min Winter	23.136	0.0	41.4	128
240 min Winter	18.460	0.0	44.0	164
360 min Winter	13.380	0.0	47.8	232
480 min Winter	10.651	0.0	50.8	296
600 min Winter	8.916	0.0	53.1	358
720 min Winter	7.708	0.0	55.1	420
960 min Winter	6.121	0.0	58.4	538
1440 min Winter	4.416	0.0	63.1	770
2160 min Winter	3.181	0.0	68.3	1112
2880 min Winter	2.518	0.0	72.1	1476
4320 min Winter	1.809	0.0	77.6	2184
5760 min Winter	1.429	0.0	81.8	2944
7200 min Winter	1.190	0.0	85.1	3640
8640 min Winter	1.024	0.0	87.9	4392
10080 min Winter	0.902	0.0	90.3	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)	19.900	Shortest Storm (mins)	15
Ratio R	0.408	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.071

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From:	To:	From:	To:	From:	To:
	(ha)		(ha)		(ha)
0	4	4	8	8	12
	0.024		0.024		0.024

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Model Details

Storage is Online Cover Level (m) 49.000

Cellular Storage Structure

Invert Level (m) 48.000 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	56.0	56.0	0.500	0.0	68.0
0.400	56.0	68.0			

Orifice Outflow Control

Diameter (m) 0.057 Discharge Coefficient 0.600 Invert Level (m) 48.000