


MTC Engineering (Cambridge) Ltd		Page 1
Ground Floor, 24 High Street Whittlesford Cambs, CB22 4LT	CUFFLEY MOTORS STORAGE CALCS 1 in 10 year	
Date 14/09/2023 11:22 File 2592-STORAGE CALCS 1 in...	Designed by JWF Checked by	

Innovyze Source Control 2020.1.3

Summary of Results for 10 year Return Period (+40%)

Half Drain Time : 64 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m ³)	Status
15 min Summer	57.746	0.510	0.0	2.0	2.0	8.7	O K
30 min Summer	57.809	0.573	0.0	2.1	2.1	10.6	O K
60 min Summer	57.819	0.583	0.0	2.1	2.1	11.5	O K
120 min Summer	57.836	0.600	0.0	2.2	2.2	13.2	O K
180 min Summer	57.837	0.601	0.0	2.2	2.2	13.4	O K
240 min Summer	57.833	0.597	0.0	2.2	2.2	12.9	O K
360 min Summer	57.818	0.582	0.0	2.1	2.1	11.4	O K
480 min Summer	57.803	0.567	0.0	2.1	2.1	9.9	O K
600 min Summer	57.747	0.511	0.0	2.0	2.0	8.7	O K
720 min Summer	57.689	0.453	0.0	1.9	1.9	7.8	O K
960 min Summer	57.600	0.364	0.0	1.7	1.7	6.2	O K
1440 min Summer	57.488	0.252	0.0	1.4	1.4	4.3	O K
2160 min Summer	57.401	0.165	0.0	1.1	1.1	2.8	O K
2880 min Summer	57.356	0.120	0.0	0.9	0.9	2.1	O K
4320 min Summer	57.314	0.078	0.0	0.7	0.7	1.3	O K
5760 min Summer	57.295	0.059	0.0	0.6	0.6	1.0	O K
7200 min Summer	57.286	0.050	0.0	0.5	0.5	0.9	O K
8640 min Summer	57.282	0.046	0.0	0.4	0.4	0.8	O K
10080 min Summer	57.279	0.043	0.0	0.4	0.4	0.7	O K
15 min Winter	57.803	0.567	0.0	2.1	2.1	10.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
15 min Summer	86.686	0.0	9.8	17
30 min Summer	54.857	0.0	12.8	31
60 min Summer	33.314	0.0	15.8	50
120 min Summer	21.895	0.0	21.2	86
180 min Summer	16.620	0.0	24.3	120
240 min Summer	13.489	0.0	26.4	154
360 min Summer	9.861	0.0	29.0	220
480 min Summer	7.817	0.0	30.7	282
600 min Summer	6.502	0.0	31.9	344
720 min Summer	5.583	0.0	32.9	406
960 min Summer	4.376	0.0	34.3	528
1440 min Summer	3.109	0.0	36.4	766
2160 min Summer	2.217	0.0	38.7	1124
2880 min Summer	1.755	0.0	40.6	1472
4320 min Summer	1.283	0.0	43.9	2204
5760 min Summer	1.040	0.0	47.0	2936
7200 min Summer	0.893	0.0	49.9	3584
8640 min Summer	0.794	0.0	52.8	4360
10080 min Summer	0.722	0.0	55.7	5136
15 min Winter	86.686	0.0	11.2	17

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Summary of Results for 10 year Return Period (+40%)

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
30 min Winter	57.825	0.589	0.0	2.2	2.2	12.2	O K
60 min Winter	57.836	0.600	0.0	2.2	2.2	13.2	O K
120 min Winter	57.854	0.618	0.0	2.2	2.2	15.0	O K
180 min Winter	57.852	0.616	0.0	2.2	2.2	14.9	O K
240 min Winter	57.844	0.608	0.0	2.2	2.2	14.0	O K
360 min Winter	57.821	0.585	0.0	2.2	2.2	11.7	O K
480 min Winter	57.799	0.563	0.0	2.1	2.1	9.6	O K
600 min Winter	57.711	0.475	0.0	1.9	1.9	8.1	O K
720 min Winter	57.641	0.405	0.0	1.8	1.8	6.9	O K
960 min Winter	57.537	0.301	0.0	1.5	1.5	5.1	O K
1440 min Winter	57.422	0.186	0.0	1.2	1.2	3.2	O K
2160 min Winter	57.347	0.111	0.0	0.9	0.9	1.9	O K
2880 min Winter	57.314	0.078	0.0	0.7	0.7	1.3	O K
4320 min Winter	57.288	0.052	0.0	0.5	0.5	0.9	O K
5760 min Winter	57.281	0.045	0.0	0.4	0.4	0.8	O K
7200 min Winter	57.276	0.040	0.0	0.4	0.4	0.7	O K
8640 min Winter	57.273	0.037	0.0	0.3	0.3	0.6	O K
10080 min Winter	57.271	0.035	0.0	0.3	0.3	0.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
30 min Winter	54.857	0.0	14.5	31
60 min Winter	33.314	0.0	17.9	56
120 min Winter	21.895	0.0	23.9	92
180 min Winter	16.620	0.0	27.4	130
240 min Winter	13.489	0.0	29.8	168
360 min Winter	9.861	0.0	32.7	236
480 min Winter	7.817	0.0	34.6	298
600 min Winter	6.502	0.0	36.0	360
720 min Winter	5.583	0.0	37.0	422
960 min Winter	4.376	0.0	38.7	542
1440 min Winter	3.109	0.0	41.0	780
2160 min Winter	2.217	0.0	43.6	1128
2880 min Winter	1.755	0.0	45.8	1476
4320 min Winter	1.283	0.0	49.7	2172
5760 min Winter	1.040	0.0	53.2	2912
7200 min Winter	0.893	0.0	56.6	3680
8640 min Winter	0.794	0.0	60.0	4384
10080 min Winter	0.722	0.0	63.3	5000

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	10
FEH Rainfall Version	2013
Site Location	GB 530772 202663 TL 30772 02663
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.069

Time (mins)	Area
From:	To: (ha)
0	4 0.069

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Model Details

Storage is Online Cover Level (m) 58.300

Complex Structure

Cellular Storage

Invert Level (m) 57.236 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	18.0	18.0	0.801	0.0	31.6
0.800	18.0	31.6			

Porous Car Park

Infiltration Coefficient Base (m/hr) 0.00000	Width (m) 5.0
Membrane Percolation (mm/hr) 1000	Length (m) 55.0
Max Percolation (l/s) 76.4	Slope (1:X) 0.0
Safety Factor 2.0	Depression Storage (mm) 5
Porosity 0.30	Evaporation (mm/day) 3
Invert Level (m) 57.800	Membrane Depth (m) 0

Orifice Outflow Control

Diameter (m) 0.037 Discharge Coefficient 0.600 Invert Level (m) 57.236