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Old Hall Chambers 31 Old Hall Street Liverpool L3 9SY		
Date 25/08/2021 11:04 File RH 1 in 100 + 40CC P1.SRCX	Designed by WinDes Checked by	
Micro Drainage		Source Control 2020.1

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

Half Drain Time : 1394 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	0.262	0.262	0.2	11.2	O K
30 min Summer	0.341	0.341	0.2	14.6	O K
60 min Summer	0.419	0.419	0.2	17.9	O K
120 min Summer	0.493	0.493	0.2	21.1	O K
180 min Summer	0.532	0.532	0.2	22.7	O K
240 min Summer	0.555	0.555	0.2	23.7	O K
360 min Summer	0.580	0.580	0.2	24.8	O K
480 min Summer	0.593	0.593	0.2	25.4	O K
600 min Summer	0.599	0.599	0.2	25.6	O K
720 min Summer	0.600	0.600	0.2	25.6	O K
960 min Summer	0.592	0.592	0.2	25.3	O K
1440 min Summer	0.563	0.563	0.2	24.1	O K
2160 min Summer	0.524	0.524	0.2	22.4	O K
2880 min Summer	0.489	0.489	0.2	20.9	O K
4320 min Summer	0.424	0.424	0.2	18.1	O K
5760 min Summer	0.366	0.366	0.2	15.6	O K
7200 min Summer	0.312	0.312	0.2	13.3	O K
8640 min Summer	0.263	0.263	0.2	11.3	O K
10080 min Summer	0.220	0.220	0.2	9.4	O K
15 min Winter	0.294	0.294	0.2	12.6	O K
30 min Winter	0.383	0.383	0.2	16.4	O K
60 min Winter	0.471	0.471	0.2	20.1	O K
120 min Winter	0.556	0.556	0.2	23.8	O K
180 min Winter	0.601	0.601	0.2	25.7	O K
240 min Winter	0.628	0.628	0.2	26.9	O K
360 min Winter	0.660	0.660	0.2	28.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	138.409	0.0	27
30 min Summer	90.322	0.0	41
60 min Summer	56.129	0.0	70
120 min Summer	33.713	0.0	130
180 min Summer	24.699	0.0	190
240 min Summer	19.696	0.0	248
360 min Summer	14.252	0.0	366
480 min Summer	11.333	0.0	486
600 min Summer	9.481	0.0	604
720 min Summer	8.191	0.0	724
960 min Summer	6.498	0.0	960
1440 min Summer	4.683	0.0	1216
2160 min Summer	3.369	0.0	1580
2880 min Summer	2.665	0.0	1968
4320 min Summer	1.912	0.0	2776
5760 min Summer	1.510	0.0	3576
7200 min Summer	1.256	0.0	4336
8640 min Summer	1.081	0.0	5104
10080 min Summer	0.952	0.0	5848
15 min Winter	138.409	0.0	26
30 min Winter	90.322	0.0	41
60 min Winter	56.129	0.0	70
120 min Winter	33.713	0.0	128
180 min Winter	24.699	0.0	186
240 min Winter	19.696	0.0	244
360 min Winter	14.252	0.0	360

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
480 min Winter	0.678	0.678	0.2	29.0	O K
600 min Winter	0.688	0.688	0.2	29.4	O K
720 min Winter	0.692	0.692	0.2	29.6	O K
960 min Winter	0.690	0.690	0.2	29.5	O K
1440 min Winter	0.663	0.663	0.2	28.4	O K
2160 min Winter	0.611	0.611	0.2	26.1	O K
2880 min Winter	0.563	0.563	0.2	24.1	O K
4320 min Winter	0.469	0.469	0.2	20.0	O K
5760 min Winter	0.380	0.380	0.2	16.2	O K
7200 min Winter	0.299	0.299	0.2	12.8	O K
8640 min Winter	0.227	0.227	0.2	9.7	O K
10080 min Winter	0.166	0.166	0.2	7.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
480 min Winter	11.333	0.0	478
600 min Winter	9.481	0.0	592
720 min Winter	8.191	0.0	708
960 min Winter	6.498	0.0	932
1440 min Winter	4.683	0.0	1362
2160 min Winter	3.369	0.0	1696
2880 min Winter	2.665	0.0	2144
4320 min Winter	1.912	0.0	3032
5760 min Winter	1.510	0.0	3864
7200 min Winter	1.256	0.0	4680
8640 min Winter	1.081	0.0	5368
10080 min Winter	0.952	0.0	6056

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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)	19.800	Shortest Storm (mins)	15
Ratio R	0.415	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.044

Time (mins)		Area	Time (mins)		Area	Time (mins)		Area
From:	To:	(ha)	From:	To:	(ha)	From:	To:	(ha)
0	4	0.015	4	8	0.015	8	12	0.015

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Model Details

Storage is Offline Cover Level (m) 1.500 Dividing Weir Level (m) 0.000

Cellular Storage Structure

Invert Level (m) 0.000 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.02846 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.02846

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	45.0	45.0	0.800	45.0	45.0