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37 Brooke Road Oakham Rutland LE15 6HG	29 New End Camden Deep Bore Soakaway 100yr FOS 5	
Date Oct 2016 File deep bore soak fos5.srcx	Designed by RJF Checked by	
XP Solutions	Source Control 2016.1	

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

Half Drain Time : 2264 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	115.841	11.841	0.3	19.1	O K
30 min Summer	115.975	11.975	0.3	29.8	O K
60 min Summer	116.086	12.086	0.3	38.7	O K
120 min Summer	116.234	12.234	0.3	50.6	O K
180 min Summer	116.294	12.294	0.3	55.3	O K
240 min Summer	116.348	12.348	0.3	59.6	O K
360 min Summer	116.396	12.396	0.3	63.5	O K
480 min Summer	116.432	12.432	0.3	66.4	O K
600 min Summer	116.453	12.453	0.3	68.1	O K
720 min Summer	116.465	12.465	0.3	69.0	O K
960 min Summer	116.473	12.473	0.3	69.6	O K
1440 min Summer	116.460	12.460	0.3	68.6	O K
2160 min Summer	116.536	12.536	0.3	74.7	O K
2880 min Summer	116.485	12.485	0.3	70.6	O K
4320 min Summer	116.400	12.400	0.3	63.8	O K
5760 min Summer	116.327	12.327	0.3	57.9	O K
7200 min Summer	116.259	12.259	0.3	52.5	O K
8640 min Summer	116.194	12.194	0.3	47.4	O K
10080 min Summer	116.134	12.134	0.3	42.5	O K
15 min Winter	115.914	11.914	0.3	24.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	138.220	0.0	63
30 min Summer	89.266	0.0	76
60 min Summer	54.817	0.0	98
120 min Summer	32.511	0.0	140
180 min Summer	23.643	0.0	190
240 min Summer	18.757	0.0	248
360 min Summer	13.517	0.0	366
480 min Summer	10.710	0.0	486
600 min Summer	8.935	0.0	606
720 min Summer	7.702	0.0	724
960 min Summer	6.089	0.0	964
1440 min Summer	4.367	0.0	1442
2160 min Summer	3.127	0.0	2068
2880 min Summer	2.465	0.0	2376
4320 min Summer	1.761	0.0	3128
5760 min Summer	1.387	0.0	3936
7200 min Summer	1.151	0.0	4736
8640 min Summer	0.988	0.0	5536
10080 min Summer	0.869	0.0	6312
15 min Winter	138.220	0.0	65

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	116.050	12.050	0.3	35.8	O K
60 min Winter	116.172	12.172	0.3	45.6	O K
120 min Winter	116.326	12.326	0.3	57.8	O K
180 min Winter	116.408	12.408	0.3	64.4	O K
240 min Winter	116.462	12.462	0.3	68.8	O K
360 min Winter	116.532	12.532	0.3	74.3	O K
480 min Winter	116.568	12.568	0.3	77.2	O K
600 min Winter	116.597	12.597	0.3	79.6	O K
720 min Winter	116.614	12.614	0.3	81.0	O K
960 min Winter	116.632	12.632	0.3	82.4	O K
1440 min Winter	116.632	12.632	0.3	82.4	O K
2160 min Winter	116.715	12.715	0.3	89.0	O K
2880 min Winter	116.652	12.652	0.3	83.9	O K
4320 min Winter	116.540	12.540	0.3	75.0	O K
5760 min Winter	116.436	12.436	0.3	66.7	O K
7200 min Winter	116.336	12.336	0.3	58.7	O K
8640 min Winter	116.239	12.239	0.3	50.9	O K
10080 min Winter	116.148	12.148	0.3	43.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	89.266	0.0	78
60 min Winter	54.817	0.0	100
120 min Winter	32.511	0.0	144
180 min Winter	23.643	0.0	190
240 min Winter	18.757	0.0	246
360 min Winter	13.517	0.0	362
480 min Winter	10.710	0.0	480
600 min Winter	8.935	0.0	598
720 min Winter	7.702	0.0	714
960 min Winter	6.089	0.0	946
1440 min Winter	4.367	0.0	1402
2160 min Winter	3.127	0.0	2124
2880 min Winter	2.465	0.0	2720
4320 min Winter	1.761	0.0	3380
5760 min Winter	1.387	0.0	4280
7200 min Winter	1.151	0.0	5152
8640 min Winter	0.988	0.0	5992
10080 min Winter	0.869	0.0	6800

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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)	20.800	Shortest Storm (mins)	15
Ratio R	0.438	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Pipe Network

Volume in Pipe Network (m ³)	13	Dia of Outfall Pipe (m)	0.1
Slope of Outfall Pipe (1:X)	500	Roughness of Outfall Pipe (mm)	0.600

Green Roof


Area (m ³)	240	Evaporation (mm/day)	3
Depression Storage (mm)	5	Decay Coefficient	0.050

Time (mins)		Area	Time (mins)		Area	Time (mins)		Area	Time (mins)		Area
From:	To:	(ha)	From:	To:	(ha)	From:	To:	(ha)	From:	To:	(ha)
0	4	0.004361	32	36	0.000881	64	68	0.000178	96	100	0.000036
4	8	0.003571	36	40	0.000721	68	72	0.000146	100	104	0.000029
8	12	0.002923	40	44	0.000590	72	76	0.000119	104	108	0.000024
12	16	0.002394	44	48	0.000483	76	80	0.000098	108	112	0.000020
16	20	0.001960	48	52	0.000396	80	84	0.000080	112	116	0.000016
20	24	0.001604	52	56	0.000324	84	88	0.000065	116	120	0.000013
24	28	0.001314	56	60	0.000265	88	92	0.000054			
28	32	0.001075	60	64	0.000217	92	96	0.000044			

Time Area Diagram

Total Area (ha) 0.116

Time (mins)		Area	Time (mins)		Area
From:	To:	(ha)	From:	To:	(ha)
0	4	0.058	4	8	0.058

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Model Details

Storage is Online Cover Level (m) 120.050

Deep Bore Soakaway Structure

Chamber Invert Level (m) 115.605
 Chamber Diameter/Width (m) 4.000
 Chamber Length (m) 20.000
 Borehole Diameter (m) 0.150
 Borehole Depth (m) 11.605
 Infiltration Coefficient Base (m/hr) 1.08000
 Safety Factor 5.0

	Side		Side
Depth	Infil.	Depth	Infil.
(m)	Coef.	(m)	Coef.
	(m/hr)		(m/hr)
0.000	1.08000	11.605	0.00000