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One Little London Chichester Sussex PO19 1PP	ELM GROVE HAYLING ISLAND M100+40% PUMPED OUTFALL	
Date MAY 2020 File ELM GROVE ATTENUATION WIT...	Designed By PF Checked By	
Micro Drainage	Source Control W.11.2	

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

Half Drain Time : 241 minutes

Storm Duration (mins)	Maximum Control (l/s)	Maximum Filtration (l/s)	Maximum Overflow (l/s)	Maximum Outflow (l/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Overflow Volume (m³)	Maximum Volume (m³)	Status
15 Summer	4.0	0.0	0.0	4.0	5.0373	0.1073	0.0	52.4	0 K
30 Summer	4.0	0.0	0.0	4.0	5.0718	0.1418	0.0	69.4	0 K
60 Summer	4.0	0.0	0.0	4.0	5.1037	0.1737	0.0	85.0	0 K
120 Summer	4.0	0.0	0.0	4.0	5.1247	0.1947	0.0	95.3	0 K
180 Summer	4.0	0.0	0.0	4.0	5.1262	0.1962	0.0	96.0	0 K
240 Summer	4.0	0.0	0.0	4.0	5.1202	0.1902	0.0	93.1	0 K
360 Summer	4.0	0.0	0.0	4.0	5.1117	0.1817	0.0	88.9	0 K
480 Summer	4.0	0.0	0.0	4.0	5.1037	0.1737	0.0	85.0	0 K
600 Summer	4.0	0.0	0.0	4.0	5.0953	0.1652	0.0	81.0	0 K
720 Summer	4.0	0.0	0.0	4.0	5.0873	0.1572	0.0	76.9	0 K
960 Summer	4.0	0.0	0.0	4.0	5.0708	0.1408	0.0	68.8	0 K
1440 Summer	4.0	0.0	0.0	4.0	5.0388	0.1088	0.0	53.1	0 K
2160 Summer	4.0	0.0	0.0	4.0	4.9973	0.0673	0.0	32.9	0 K
2880 Summer	4.0	0.0	0.0	4.0	4.9663	0.0362	0.0	17.8	0 K
4320 Summer	4.0	0.0	0.0	4.0	4.9333	0.0033	0.0	1.7	0 K
5760 Summer	3.4	0.0	0.0	3.4	4.9300	0.0000	0.0	0.0	0 K
7200 Summer	2.9	0.0	0.0	2.9	4.9300	0.0000	0.0	0.0	0 K
8640 Summer	2.5	0.0	0.0	2.5	4.9300	0.0000	0.0	0.0	0 K
10080 Summer	2.2	0.0	0.0	2.2	4.9300	0.0000	0.0	0.0	0 K
15 Winter	4.0	0.0	0.0	4.0	5.0508	0.1208	0.0	59.2	0 K
30 Winter	4.0	0.0	0.0	4.0	5.0912	0.1612	0.0	79.0	0 K
60 Winter	4.0	0.0	0.0	4.0	5.1292	0.1992	0.0	97.6	0 K
120 Winter	4.0	0.0	0.0	4.0	5.1572	0.2272	0.0	111.2	0 K
180 Winter	4.0	0.0	0.0	4.0	5.1627	0.2327	0.0	113.9	0 K
240 Winter	4.0	0.0	0.0	4.0	5.1592	0.2292	0.0	112.1	0 K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
15 Summer	131.85	22
30 Summer	88.57	36
60 Summer	56.71	66
120 Summer	35.00	122
180 Summer	25.97	180
240 Summer	20.88	214
360 Summer	15.37	276
480 Summer	12.34	342
600 Summer	10.40	410
720 Summer	9.04	478
960 Summer	7.24	612
1440 Summer	5.28	872
2160 Summer	3.85	1240
2880 Summer	3.07	1588
4320 Summer	2.23	2212
5760 Summer	1.77	0
7200 Summer	1.48	0
8640 Summer	1.28	0
10080 Summer	1.14	0
15 Winter	131.85	22
30 Winter	88.57	36
60 Winter	56.71	64
120 Winter	35.00	122
180 Winter	25.97	178
240 Winter	20.88	232

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

Storm Duration (mins)	Maximum Control (l/s)	Maximum Filtration (l/s)	Maximum Overflow (l/s)	Maximum Outflow (l/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Overflow Volume (m³)	Maximum Volume (m³)	Status
360 Winter	4.0	0.0	0.0	4.0	5.1452	0.2152	0.0	105.2	0 K
480 Winter	4.0	0.0	0.0	4.0	5.1342	0.2042	0.0	99.9	0 K
600 Winter	4.0	0.0	0.0	4.0	5.1222	0.1922	0.0	94.1	0 K
720 Winter	4.0	0.0	0.0	4.0	5.1093	0.1792	0.0	87.8	0 K
960 Winter	4.0	0.0	0.0	4.0	5.0833	0.1533	0.0	75.0	0 K
1440 Winter	4.0	0.0	0.0	4.0	5.0338	0.1038	0.0	50.7	0 K
2160 Winter	4.0	0.0	0.0	4.0	4.9728	0.0427	0.0	21.0	0 K
2880 Winter	4.0	0.0	0.0	4.0	4.9358	0.0058	0.0	2.7	0 K
4320 Winter	3.1	0.0	0.0	3.1	4.9300	0.0000	0.0	0.0	0 K
5760 Winter	2.5	0.0	0.0	2.5	4.9300	0.0000	0.0	0.0	0 K
7200 Winter	2.1	0.0	0.0	2.1	4.9300	0.0000	0.0	0.0	0 K
8640 Winter	1.8	0.0	0.0	1.8	4.9300	0.0000	0.0	0.0	0 K
10080 Winter	1.6	0.0	0.0	1.6	4.9300	0.0000	0.0	0.0	0 K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
360 Winter	15.37	296
480 Winter	12.34	370
600 Winter	10.40	446
720 Winter	9.04	522
960 Winter	7.24	666
1440 Winter	5.28	938
2160 Winter	3.85	1296
2880 Winter	3.07	1560
4320 Winter	2.23	0
5760 Winter	1.77	0
7200 Winter	1.48	0
8640 Winter	1.28	0
10080 Winter	1.14	0

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Rainfall Details

Region	ENG+WAL	Cv (Summer)	0.750	Summer Storms	Yes
Return Period (years)	100	Cv (Winter)	0.840	Winter Storms	Yes
M5-60 (mm)	20.000	Shortest Storm (mins)	15	Climate Change %	+40
Ratio-R	0.350	Longest Storm (mins)	10080		

Time / Area Diagram

Total Area (ha) = 0.239

Time from:	(mins) to:	Area (ha)	Time from:	(mins) to:	Area (ha)
0	4	0.102	4	8	0.137

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Porous Car Park Details

Infil Coef - Base (m/hr)	0.000000	Invert Level (m)	4.930
Membrane Percolation (mm/hr)	1000	Cover Level (m)	6.400
Safety Factor	1.5	Slope (1:x)	0.0
Porosity	0.95	Max Percolation (l/s)	143.1
Length (m)	22.7	Depression Storage (mm)	5
Width (m)	22.7	Evaporation (mm/day)	3

Pump Outflow Control

Invert Level of Control 4.750

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.10	4.0	0.60	4.0	1.60	4.0	2.60	4.0	5.00	4.0	7.50	4.0
0.20	4.0	0.80	4.0	1.80	4.0	3.00	4.0	5.50	4.0	8.00	4.0
0.30	4.0	1.00	4.0	2.00	4.0	3.50	4.0	6.00	4.0	8.50	4.0
0.40	4.0	1.20	4.0	2.20	4.0	4.00	4.0	6.50	4.0	9.00	4.0
0.50	4.0	1.40	4.0	2.40	4.0	4.50	4.0	7.00	4.0	9.50	4.0

Pipe Overflow Control

Pipe Diameter (m)	0.100	Roughness (mm)	0.600	Invert Level (m)	5.230
Slope (1:x)	50.0	Entry Loss Coef	0.500		
Length (m)	5.000	Coef of Contraction	0.600		