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20 Milton Park Abingdon Oxfordshire OX14 4SH	Land North of Green Lane Chesterton Basin 2	
Date 14/04/2016 File Basin 2 + Hydrobreak.srcx	Designed by HSS Checked by SF	
Causeway		Source Control 2014.1.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m <sup>3</sup> )	Status
15 min Summer	74.211	0.166	4.9	69.3	O K
30 min Summer	74.255	0.210	4.9	89.2	O K
60 min Summer	74.294	0.249	4.9	107.3	O K
120 min Summer	74.321	0.276	4.9	120.5	O K
180 min Summer	74.328	0.283	4.9	123.6	O K
240 min Summer	74.328	0.283	4.9	123.5	O K
360 min Summer	74.324	0.279	4.9	121.6	O K
480 min Summer	74.318	0.273	4.9	118.7	O K
600 min Summer	74.310	0.265	4.9	114.9	O K
720 min Summer	74.301	0.256	4.9	110.7	O K
960 min Summer	74.282	0.237	4.9	101.9	O K
1440 min Summer	74.246	0.201	4.9	85.3	O K
2160 min Summer	74.204	0.159	4.8	66.1	O K
2880 min Summer	74.175	0.130	4.7	53.6	O K
4320 min Summer	74.149	0.104	3.9	42.3	O K
5760 min Summer	74.134	0.089	3.2	36.1	O K
7200 min Summer	74.125	0.080	2.8	32.3	O K
8640 min Summer	74.118	0.073	2.5	29.5	O K
10080 min Summer	74.113	0.068	2.2	27.4	O K
15 min Winter	74.230	0.185	4.9	77.8	O K
30 min Winter	74.279	0.234	4.9	100.4	O K


Storm Event	Rain (mm/hr)	Flooded Volume (m <sup>3</sup> )	Discharge Volume (m <sup>3</sup> )	Time-Peak (mins)
15 min Summer	128.285	0.0	68.9	18
30 min Summer	84.226	0.0	91.3	33
60 min Summer	52.662	0.0	116.8	62
120 min Summer	31.800	0.0	141.4	122
180 min Summer	23.353	0.0	155.9	178
240 min Summer	18.644	0.0	166.0	204
360 min Summer	13.543	0.0	180.9	264
480 min Summer	10.792	0.0	192.3	330
600 min Summer	9.043	0.0	201.4	398
720 min Summer	7.823	0.0	209.1	466
960 min Summer	6.219	0.0	221.6	598
1440 min Summer	4.493	0.0	239.9	852
2160 min Summer	3.241	0.0	261.4	1212
2880 min Summer	2.568	0.0	276.0	1556
4320 min Summer	1.847	0.0	296.9	2248
5760 min Summer	1.461	0.0	314.8	2992
7200 min Summer	1.217	0.0	327.7	3680
8640 min Summer	1.048	0.0	338.3	4408
10080 min Summer	0.923	0.0	346.8	5144
15 min Winter	128.285	0.0	77.5	18
30 min Winter	84.226	0.0	102.6	32

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m <sup>3</sup> )	Status
60 min Winter	74.323	0.278	4.9	121.2	O K
120 min Winter	74.355	0.310	4.9	137.1	O K
180 min Winter	74.365	0.320	4.9	141.7	O K
240 min Winter	74.365	0.320	4.9	141.6	O K
360 min Winter	74.357	0.312	4.9	137.6	O K
480 min Winter	74.347	0.302	4.9	132.9	O K
600 min Winter	74.335	0.290	4.9	126.9	O K
720 min Winter	74.321	0.276	4.9	120.3	O K
960 min Winter	74.292	0.247	4.9	106.6	O K
1440 min Winter	74.238	0.193	4.9	81.7	O K
2160 min Winter	74.181	0.136	4.7	56.1	O K
2880 min Winter	74.156	0.111	4.2	45.2	O K
4320 min Winter	74.132	0.087	3.2	35.2	O K
5760 min Winter	74.120	0.075	2.5	30.2	O K
7200 min Winter	74.112	0.067	2.1	27.0	O K
8640 min Winter	74.106	0.061	1.8	24.6	O K
10080 min Winter	74.102	0.057	1.6	22.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m <sup>3</sup> )	Discharge Volume (m <sup>3</sup> )	Time-Peak (mins)
60 min Winter	52.662	0.0	131.0	62
120 min Winter	31.800	0.0	158.5	118
180 min Winter	23.353	0.0	174.7	174
240 min Winter	18.644	0.0	186.1	228
360 min Winter	13.543	0.0	202.8	286
480 min Winter	10.792	0.0	215.6	360
600 min Winter	9.043	0.0	225.8	436
720 min Winter	7.823	0.0	234.4	508
960 min Winter	6.219	0.0	248.4	648
1440 min Winter	4.493	0.0	269.0	908
2160 min Winter	3.241	0.0	292.9	1236
2880 min Winter	2.568	0.0	309.3	1560
4320 min Winter	1.847	0.0	332.9	2288
5760 min Winter	1.461	0.0	352.7	3000
7200 min Winter	1.217	0.0	367.1	3744
8640 min Winter	1.048	0.0	379.1	4416
10080 min Winter	0.923	0.0	388.9	5136

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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)	20.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.300

Time (mins)		Area
From:	To:	(ha)
0	4	0.300

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Model Details

Storage is Online Cover Level (m) 75.200

Tank or Pond Structure

Invert Level (m) 74.045

Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )
0.000	392.0	0.350	507.0	0.700	634.0

Hydro-Brake Optimum® Outflow Control

Unit Reference	MD-SHE-0109-5000-0700-5000
Design Head (m)	0.700
Design Flow (l/s)	5.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Diameter (mm)	109
Invert Level (m)	74.045
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.700	4.9
Flush-Flo™	0.213	4.9
Kick-Flo®	0.480	4.1
Mean Flow over Head Range	-	4.2

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake Optimum® as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.8	1.200	6.3	3.000	9.7	7.000	14.6
0.200	4.9	1.400	6.8	3.500	10.5	7.500	15.0
0.300	4.8	1.600	7.2	4.000	11.2	8.000	15.5
0.400	4.6	1.800	7.7	4.500	11.8	8.500	16.0
0.500	4.2	2.000	8.0	5.000	12.4	9.000	16.5
0.600	4.6	2.200	8.4	5.500	13.0	9.500	16.9
0.800	5.2	2.400	8.8	6.000	13.5		
1.000	5.8	2.600	9.1	6.500	14.1		