

10 Aldersgate Street
London
EC1A 4HJ

Aberfeldy Village
Block H1, H2



Date 08/02/2022
File Block H1, H2.SRCX

Designed by LB
Checked by GB

Innovyze

Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	9.258	0.258	1.4	51.6	O K
30 min Summer	9.336	0.336	1.4	67.2	O K
60 min Summer	9.413	0.413	1.4	82.7	O K
120 min Summer	9.486	0.486	1.4	97.1	O K
180 min Summer	9.522	0.522	1.4	104.3	O K
240 min Summer	9.542	0.542	1.4	108.3	O K
360 min Summer	9.561	0.561	1.4	112.3	O K
480 min Summer	9.568	0.568	1.4	113.6	O K
600 min Summer	9.567	0.567	1.4	113.3	O K
720 min Summer	9.560	0.560	1.4	112.1	O K
960 min Summer	9.544	0.544	1.4	108.9	O K
1440 min Summer	9.509	0.509	1.4	101.8	O K
2160 min Summer	9.455	0.455	1.4	91.0	O K
2880 min Summer	9.406	0.406	1.4	81.2	O K
4320 min Summer	9.322	0.322	1.4	64.3	O K
5760 min Summer	9.253	0.253	1.4	50.6	O K
7200 min Summer	9.201	0.201	1.4	40.1	O K
8640 min Summer	9.161	0.161	1.3	32.3	O K
10080 min Summer	9.132	0.132	1.3	26.5	O K
15 min Winter	9.289	0.289	1.4	57.9	O K
30 min Winter	9.377	0.377	1.4	75.5	O K
60 min Winter	9.465	0.465	1.4	93.0	O K
120 min Winter	9.549	0.549	1.4	109.7	O K
180 min Winter	9.590	0.590	1.4	118.0	O K
240 min Winter	9.614	0.614	1.4	122.7	O K
360 min Winter	9.638	0.638	1.4	127.7	O K
480 min Winter	9.649	0.649	1.4	129.7	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	138.153	0.0	50.9	19
30 min Summer	90.705	0.0	66.9	34
60 min Summer	56.713	0.0	85.5	64
120 min Summer	34.246	0.0	103.4	122
180 min Summer	25.149	0.0	113.8	182
240 min Summer	20.078	0.0	121.2	242
360 min Summer	14.585	0.0	132.0	362
480 min Summer	11.622	0.0	140.1	482
600 min Summer	9.738	0.0	146.7	600
720 min Summer	8.424	0.0	152.1	716
960 min Summer	6.697	0.0	160.9	818
1440 min Summer	4.839	0.0	173.2	1066
2160 min Summer	3.490	0.0	190.8	1432
2880 min Summer	2.766	0.0	201.5	1820
4320 min Summer	1.989	0.0	217.1	2596
5760 min Summer	1.573	0.0	229.7	3336
7200 min Summer	1.311	0.0	239.1	4032
8640 min Summer	1.129	0.0	246.9	4680
10080 min Summer	0.994	0.0	253.4	5352
15 min Winter	138.153	0.0	57.1	19
30 min Winter	90.705	0.0	74.9	33
60 min Winter	56.713	0.0	95.8	62
120 min Winter	34.246	0.0	115.8	122
180 min Winter	25.149	0.0	127.5	180
240 min Winter	20.078	0.0	135.7	238
360 min Winter	14.585	0.0	147.7	354
480 min Winter	11.622	0.0	156.8	468

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Block H1, H2



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Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
600 min Winter	9.650	0.650	1.4	130.1	O K
720 min Winter	9.647	0.647	1.4	129.3	O K
960 min Winter	9.630	0.630	1.4	126.0	O K
1440 min Winter	9.588	0.588	1.4	117.5	O K
2160 min Winter	9.519	0.519	1.4	103.8	O K
2880 min Winter	9.439	0.439	1.4	87.9	O K
4320 min Winter	9.310	0.310	1.4	61.9	O K
5760 min Winter	9.214	0.214	1.4	42.8	O K
7200 min Winter	9.150	0.150	1.3	30.0	O K
8640 min Winter	9.110	0.110	1.2	22.0	O K
10080 min Winter	9.086	0.086	1.1	17.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
600 min Winter	9.738	0.0	164.0	582
720 min Winter	8.424	0.0	170.0	692
960 min Winter	6.697	0.0	179.5	904
1440 min Winter	4.839	0.0	190.6	1126
2160 min Winter	3.490	0.0	213.7	1600
2880 min Winter	2.766	0.0	225.7	1992
4320 min Winter	1.989	0.0	243.3	2768
5760 min Winter	1.573	0.0	257.3	3464
7200 min Winter	1.311	0.0	267.9	4112
8640 min Winter	1.129	0.0	276.6	4752
10080 min Winter	0.994	0.0	284.0	5344

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Source Control 2020.1

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 %	+40

Time Area Diagram

Total Area (ha) 0.203

Time (mins)		Area
From:	To:	(ha)
0	4	0.203

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Innovyze Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 10.000

Tank or Pond Structure

Invert Level (m) 9.000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	200.0	1.000	200.0

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0058-1500-1000-1500
 Design Head (m) 1.000
 Design Flow (l/s) 1.5
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available Yes
 Diameter (mm) 58
 Invert Level (m) 9.000
 Minimum Outlet Pipe Diameter (mm) 75
 Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	1.5	Kick-Flo®	0.515	1.1
Flush-Flo™	0.253	1.4	Mean Flow over Head Range	-	1.2

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)	Depth (m)	Flow (l/s)
0.100	1.2	0.800	1.4	2.000	2.0	4.000	2.8	7.000	3.7
0.200	1.4	1.000	1.5	2.200	2.1	4.500	3.0	7.500	3.8
0.300	1.4	1.200	1.6	2.400	2.2	5.000	3.1	8.000	3.9
0.400	1.3	1.400	1.7	2.600	2.3	5.500	3.3	8.500	4.0
0.500	1.2	1.600	1.9	3.000	2.5	6.000	3.4	9.000	4.1
0.600	1.2	1.800	2.0	3.500	2.7	6.500	3.5	9.500	4.2

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 Block H3



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Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
15 min Summer	9.216	0.216	1.1	43.2	O K
30 min Summer	9.282	0.282	1.1	56.3	O K
60 min Summer	9.346	0.346	1.1	69.3	O K
120 min Summer	9.407	0.407	1.1	81.3	O K
180 min Summer	9.436	0.436	1.1	87.3	O K
240 min Summer	9.453	0.453	1.1	90.6	O K
360 min Summer	9.470	0.470	1.1	94.0	O K
480 min Summer	9.476	0.476	1.1	95.3	O K
600 min Summer	9.476	0.476	1.1	95.2	O K
720 min Summer	9.471	0.471	1.1	94.1	O K
960 min Summer	9.456	0.456	1.1	91.2	O K
1440 min Summer	9.427	0.427	1.1	85.5	O K
2160 min Summer	9.385	0.385	1.1	77.1	O K
2880 min Summer	9.346	0.346	1.1	69.2	O K
4320 min Summer	9.277	0.277	1.1	55.4	O K
5760 min Summer	9.221	0.221	1.1	44.1	O K
7200 min Summer	9.177	0.177	1.1	35.4	O K
8640 min Summer	9.144	0.144	1.1	28.8	O K
10080 min Summer	9.119	0.119	1.1	23.9	O K
15 min Winter	9.242	0.242	1.1	48.5	O K
30 min Winter	9.316	0.316	1.1	63.2	O K
60 min Winter	9.390	0.390	1.1	77.9	O K
120 min Winter	9.459	0.459	1.1	91.9	O K
180 min Winter	9.495	0.495	1.1	99.0	O K
240 min Winter	9.515	0.515	1.1	103.0	O K
360 min Winter	9.537	0.537	1.1	107.4	O K
480 min Winter	9.547	0.547	1.1	109.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
15 min Summer	138.153	0.0	42.3	19
30 min Summer	90.705	0.0	55.7	34
60 min Summer	56.713	0.0	71.5	64
120 min Summer	34.246	0.0	86.4	122
180 min Summer	25.149	0.0	95.1	182
240 min Summer	20.078	0.0	101.3	242
360 min Summer	14.585	0.0	110.3	362
480 min Summer	11.622	0.0	117.1	482
600 min Summer	9.738	0.0	122.5	600
720 min Summer	8.424	0.0	127.1	720
960 min Summer	6.697	0.0	134.4	808
1440 min Summer	4.839	0.0	144.7	1038
2160 min Summer	3.490	0.0	159.7	1428
2880 min Summer	2.766	0.0	168.6	1820
4320 min Summer	1.989	0.0	181.7	2596
5760 min Summer	1.573	0.0	192.3	3344
7200 min Summer	1.311	0.0	200.2	4032
8640 min Summer	1.129	0.0	206.7	4752
10080 min Summer	0.994	0.0	212.1	5440
15 min Winter	138.153	0.0	47.5	19
30 min Winter	90.705	0.0	62.3	33
60 min Winter	56.713	0.0	80.1	62
120 min Winter	34.246	0.0	96.7	122
180 min Winter	25.149	0.0	106.5	180
240 min Winter	20.078	0.0	113.4	238
360 min Winter	14.585	0.0	123.4	354
480 min Winter	11.622	0.0	130.9	470

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Block H3



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Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
600 min Winter	9.549	0.549	1.1	109.8	O K
720 min Winter	9.546	0.546	1.1	109.3	O K
960 min Winter	9.534	0.534	1.1	106.7	O K
1440 min Winter	9.497	0.497	1.1	99.4	O K
2160 min Winter	9.435	0.435	1.1	86.9	O K
2880 min Winter	9.373	0.373	1.1	74.7	O K
4320 min Winter	9.268	0.268	1.1	53.7	O K
5760 min Winter	9.190	0.190	1.1	37.9	O K
7200 min Winter	9.136	0.136	1.1	27.2	O K
8640 min Winter	9.101	0.101	1.0	20.3	O K
10080 min Winter	9.080	0.080	1.0	16.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
600 min Winter	9.738	0.0	137.0	582
720 min Winter	8.424	0.0	141.9	694
960 min Winter	6.697	0.0	149.7	906
1440 min Winter	4.839	0.0	158.6	1140
2160 min Winter	3.490	0.0	178.8	1576
2880 min Winter	2.766	0.0	188.9	1988
4320 min Winter	1.989	0.0	203.6	2768
5760 min Winter	1.573	0.0	215.4	3464
7200 min Winter	1.311	0.0	224.2	4112
8640 min Winter	1.129	0.0	231.6	4760
10080 min Winter	0.994	0.0	237.7	5352

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Source Control 2020.1

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 %	+40

Time Area Diagram

Total Area (ha) 0.170

Time (mins)		Area
From:	To:	(ha)
0	4	0.170

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Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 10.000

Tank or Pond Structure

Invert Level (m) 9.000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	200.0	1.000	200.0

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0053-1300-1000-1300
 Design Head (m) 1.000
 Design Flow (l/s) 1.3
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available Yes
 Diameter (mm) 53
 Invert Level (m) 9.000
 Minimum Outlet Pipe Diameter (mm) 75
 Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	1.3	Kick-Flo®	0.477	0.9
Flush-Flo™	0.236	1.1	Mean Flow over Head Range	-	1.1

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)	Depth (m)	Flow (l/s)
0.100	1.0	0.800	1.2	2.000	1.8	4.000	2.4	7.000	3.2
0.200	1.1	1.000	1.3	2.200	1.9	4.500	2.6	7.500	3.3
0.300	1.1	1.200	1.4	2.400	1.9	5.000	2.7	8.000	3.4
0.400	1.1	1.400	1.5	2.600	2.0	5.500	2.8	8.500	3.5
0.500	1.0	1.600	1.6	3.000	2.1	6.000	2.9	9.000	3.6
0.600	1.0	1.800	1.7	3.500	2.3	6.500	3.1	9.500	3.6

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Block I1



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Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	9.230	0.230	0.8	23.0	O K
30 min Summer	9.298	0.298	0.8	29.8	O K
60 min Summer	9.365	0.365	0.8	36.5	O K
120 min Summer	9.425	0.425	0.8	42.5	O K
180 min Summer	9.452	0.452	0.8	45.2	O K
240 min Summer	9.463	0.463	0.8	46.3	O K
360 min Summer	9.470	0.470	0.8	47.0	O K
480 min Summer	9.465	0.465	0.8	46.5	O K
600 min Summer	9.456	0.456	0.8	45.6	O K
720 min Summer	9.447	0.447	0.8	44.7	O K
960 min Summer	9.428	0.428	0.8	42.8	O K
1440 min Summer	9.385	0.385	0.8	38.5	O K
2160 min Summer	9.327	0.327	0.8	32.7	O K
2880 min Summer	9.277	0.277	0.8	27.7	O K
4320 min Summer	9.196	0.196	0.8	19.6	O K
5760 min Summer	9.142	0.142	0.8	14.2	O K
7200 min Summer	9.106	0.106	0.8	10.6	O K
8640 min Summer	9.084	0.084	0.7	8.4	O K
10080 min Summer	9.070	0.070	0.7	7.0	O K
15 min Winter	9.258	0.258	0.8	25.8	O K
30 min Winter	9.335	0.335	0.8	33.5	O K
60 min Winter	9.412	0.412	0.8	41.2	O K
120 min Winter	9.481	0.481	0.8	48.1	O K
180 min Winter	9.512	0.512	0.8	51.2	O K
240 min Winter	9.527	0.527	0.8	52.7	O K
360 min Winter	9.538	0.538	0.8	53.8	O K
480 min Winter	9.536	0.536	0.8	53.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	138.153	0.0	23.2	19
30 min Summer	90.705	0.0	30.5	33
60 min Summer	56.713	0.0	38.5	64
120 min Summer	34.246	0.0	46.5	122
180 min Summer	25.149	0.0	51.3	182
240 min Summer	20.078	0.0	54.6	242
360 min Summer	14.585	0.0	59.5	360
480 min Summer	11.622	0.0	63.2	478
600 min Summer	9.738	0.0	66.2	526
720 min Summer	8.424	0.0	68.7	590
960 min Summer	6.697	0.0	72.8	714
1440 min Summer	4.839	0.0	78.8	968
2160 min Summer	3.490	0.0	85.6	1360
2880 min Summer	2.766	0.0	90.5	1732
4320 min Summer	1.989	0.0	97.5	2464
5760 min Summer	1.573	0.0	103.0	3168
7200 min Summer	1.311	0.0	107.2	3824
8640 min Summer	1.129	0.0	110.8	4496
10080 min Summer	0.994	0.0	113.8	5152
15 min Winter	138.153	0.0	26.0	19
30 min Winter	90.705	0.0	34.1	33
60 min Winter	56.713	0.0	43.1	62
120 min Winter	34.246	0.0	52.1	120
180 min Winter	25.149	0.0	57.4	180
240 min Winter	20.078	0.0	61.1	236
360 min Winter	14.585	0.0	66.6	350
480 min Winter	11.622	0.0	70.8	462

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Block I1



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Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
600 min Winter	9.528	0.528	0.8	52.8	O K
720 min Winter	9.516	0.516	0.8	51.6	O K
960 min Winter	9.492	0.492	0.8	49.2	O K
1440 min Winter	9.440	0.440	0.8	44.0	O K
2160 min Winter	9.348	0.348	0.8	34.8	O K
2880 min Winter	9.270	0.270	0.8	27.0	O K
4320 min Winter	9.159	0.159	0.8	15.9	O K
5760 min Winter	9.098	0.098	0.8	9.8	O K
7200 min Winter	9.070	0.070	0.7	7.0	O K
8640 min Winter	9.059	0.059	0.6	5.9	O K
10080 min Winter	9.051	0.051	0.5	5.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
600 min Winter	9.738	0.0	74.1	568
720 min Winter	8.424	0.0	76.9	666
960 min Winter	6.697	0.0	81.5	752
1440 min Winter	4.839	0.0	88.2	1068
2160 min Winter	3.490	0.0	95.9	1472
2880 min Winter	2.766	0.0	101.3	1872
4320 min Winter	1.989	0.0	109.2	2552
5760 min Winter	1.573	0.0	115.4	3176
7200 min Winter	1.311	0.0	120.1	3752
8640 min Winter	1.129	0.0	124.1	4496
10080 min Winter	0.994	0.0	127.4	5152

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Source Control 2020.1

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 %	+40

Time Area Diagram

Total Area (ha) 0.091

Time (mins)		Area
From:	To:	(ha)
0	4	0.091

10 Aldersgate Street
 London
 EC1A 4HJ

Aberfeldy Village
 Block I1



Date 08/02/2022
 File Block I1.SRCX

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Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 10.000

Tank or Pond Structure

Invert Level (m) 9.000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	100.0	1.000	100.0

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0047-1000-1000-1000
 Design Head (m) 1.000
 Design Flow (l/s) 1.0
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available Yes
 Diameter (mm) 47
 Invert Level (m) 9.000
 Minimum Outlet Pipe Diameter (mm) 75
 Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	1.0	Kick-Flo®	0.415	0.7
Flush-Flo™	0.205	0.8	Mean Flow over Head Range	-	0.8

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)	Depth (m)	Flow (l/s)
0.100	0.8	0.800	0.9	2.000	1.4	4.000	1.9	7.000	2.4
0.200	0.8	1.000	1.0	2.200	1.4	4.500	2.0	7.500	2.5
0.300	0.8	1.200	1.1	2.400	1.5	5.000	2.1	8.000	2.6
0.400	0.7	1.400	1.2	2.600	1.5	5.500	2.2	8.500	2.7
0.500	0.7	1.600	1.2	3.000	1.6	6.000	2.3	9.000	2.7
0.600	0.8	1.800	1.3	3.500	1.8	6.500	2.3	9.500	2.8

10 Aldersgate Street
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Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	9.246	0.246	1.1	88.5	O K
30 min Summer	9.322	0.322	1.1	115.8	O K
60 min Summer	9.399	0.399	1.1	143.7	O K
120 min Summer	9.476	0.476	1.1	171.3	O K
180 min Summer	9.518	0.518	1.1	186.4	O K
240 min Summer	9.544	0.544	1.1	196.0	O K
360 min Summer	9.579	0.579	1.1	208.5	O K
480 min Summer	9.601	0.601	1.1	216.4	O K
600 min Summer	9.615	0.615	1.1	221.4	O K
720 min Summer	9.624	0.624	1.1	224.7	O K
960 min Summer	9.633	0.633	1.1	227.8	O K
1440 min Summer	9.628	0.628	1.1	226.2	O K
2160 min Summer	9.604	0.604	1.1	217.6	O K
2880 min Summer	9.580	0.580	1.1	209.0	O K
4320 min Summer	9.534	0.534	1.1	192.2	O K
5760 min Summer	9.487	0.487	1.1	175.4	O K
7200 min Summer	9.436	0.436	1.1	157.1	O K
8640 min Summer	9.391	0.391	1.1	140.9	O K
10080 min Summer	9.351	0.351	1.1	126.5	O K
15 min Winter	9.276	0.276	1.1	99.2	O K
30 min Winter	9.361	0.361	1.1	129.8	O K
60 min Winter	9.448	0.448	1.1	161.3	O K
120 min Winter	9.535	0.535	1.1	192.5	O K
180 min Winter	9.582	0.582	1.1	209.6	O K
240 min Winter	9.613	0.613	1.1	220.6	O K
360 min Winter	9.653	0.653	1.1	235.1	O K
480 min Winter	9.679	0.679	1.1	244.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	138.153	0.0	78.8	19
30 min Summer	90.705	0.0	93.3	34
60 min Summer	56.713	0.0	141.5	64
120 min Summer	34.246	0.0	167.6	124
180 min Summer	25.149	0.0	177.6	184
240 min Summer	20.078	0.0	179.6	244
360 min Summer	14.585	0.0	178.2	362
480 min Summer	11.622	0.0	176.0	482
600 min Summer	9.738	0.0	173.7	602
720 min Summer	8.424	0.0	171.6	722
960 min Summer	6.697	0.0	167.7	962
1440 min Summer	4.839	0.0	160.9	1440
2160 min Summer	3.490	0.0	316.8	1820
2880 min Summer	2.766	0.0	324.2	2192
4320 min Summer	1.989	0.0	300.0	2984
5760 min Summer	1.573	0.0	389.6	3856
7200 min Summer	1.311	0.0	405.5	4608
8640 min Summer	1.129	0.0	418.7	5360
10080 min Summer	0.994	0.0	429.4	6056
15 min Winter	138.153	0.0	86.1	19
30 min Winter	90.705	0.0	95.3	34
60 min Winter	56.713	0.0	157.3	64
120 min Winter	34.246	0.0	179.1	122
180 min Winter	25.149	0.0	180.7	182
240 min Winter	20.078	0.0	179.7	240
360 min Winter	14.585	0.0	177.3	358
480 min Winter	11.622	0.0	175.2	476

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Aberfeldy Village
Block J1



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Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
600 min Winter	9.696	0.696	1.1	250.7	O K
720 min Winter	9.708	0.708	1.1	255.0	Flood Risk
960 min Winter	9.721	0.721	1.1	259.6	Flood Risk
1440 min Winter	9.723	0.723	1.1	260.3	Flood Risk
2160 min Winter	9.699	0.699	1.1	251.6	O K
2880 min Winter	9.668	0.668	1.1	240.3	O K
4320 min Winter	9.607	0.607	1.1	218.7	O K
5760 min Winter	9.544	0.544	1.1	195.9	O K
7200 min Winter	9.475	0.475	1.1	171.2	O K
8640 min Winter	9.401	0.401	1.1	144.5	O K
10080 min Winter	9.340	0.340	1.1	122.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
600 min Winter	9.738	0.0	173.5	592
720 min Winter	8.424	0.0	172.0	708
960 min Winter	6.697	0.0	169.5	936
1440 min Winter	4.839	0.0	166.4	1386
2160 min Winter	3.490	0.0	342.8	2016
2880 min Winter	2.766	0.0	335.7	2304
4320 min Winter	1.989	0.0	309.4	3240
5760 min Winter	1.573	0.0	436.3	4152
7200 min Winter	1.311	0.0	454.1	5048
8640 min Winter	1.129	0.0	469.0	5792
10080 min Winter	0.994	0.0	481.3	6464

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Aberfeldy Village
 Block J1



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Source Control 2020.1

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 %	+40

Time Area Diagram

Total Area (ha) 0.345

Time (mins)		Area
From:	To:	(ha)
0	4	0.345

10 Aldersgate Street
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Aberfeldy Village
Block J1



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Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 10.000

Tank or Pond Structure

Invert Level (m) 9.000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	360.0	1.000	360.0

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0053-1300-1000-1300
 Design Head (m) 1.000
 Design Flow (l/s) 1.3
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available Yes
 Diameter (mm) 53
 Invert Level (m) 9.000
 Minimum Outlet Pipe Diameter (mm) 75
 Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	1.3	Kick-Flo®	0.477	0.9
Flush-Flo™	0.236	1.1	Mean Flow over Head Range	-	1.1

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)	Depth (m)	Flow (l/s)
0.100	1.0	0.800	1.2	2.000	1.8	4.000	2.4	7.000	3.2
0.200	1.1	1.000	1.3	2.200	1.9	4.500	2.6	7.500	3.3
0.300	1.1	1.200	1.4	2.400	1.9	5.000	2.7	8.000	3.4
0.400	1.1	1.400	1.5	2.600	2.0	5.500	2.8	8.500	3.5
0.500	1.0	1.600	1.6	3.000	2.1	6.000	2.9	9.000	3.6
0.600	1.0	1.800	1.7	3.500	2.3	6.500	3.1	9.500	3.6

10 Aldersgate Street
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Aberfeldy Village
Block A1 A2



Date 20/10/2022
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Source Control 2020.1.3

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
15 min Summer	9.230	0.230	2.5	114.9	O K
30 min Summer	9.300	0.300	2.5	149.9	O K
60 min Summer	9.370	0.370	2.5	185.1	O K
120 min Summer	9.437	0.437	2.5	218.4	O K
180 min Summer	9.471	0.471	2.5	235.4	O K
240 min Summer	9.491	0.491	2.5	245.4	O K
360 min Summer	9.513	0.513	2.5	256.7	O K
480 min Summer	9.524	0.524	2.5	262.2	O K
600 min Summer	9.528	0.528	2.5	264.1	O K
720 min Summer	9.527	0.527	2.5	263.6	O K
960 min Summer	9.518	0.518	2.5	259.1	O K
1440 min Summer	9.497	0.497	2.5	248.5	O K
2160 min Summer	9.463	0.463	2.5	231.4	O K
2880 min Summer	9.428	0.428	2.5	213.9	O K
4320 min Summer	9.363	0.363	2.5	181.4	O K
5760 min Summer	9.306	0.306	2.5	153.2	O K
7200 min Summer	9.259	0.259	2.5	129.5	O K
8640 min Summer	9.220	0.220	2.4	109.9	O K
10080 min Summer	9.188	0.188	2.4	94.2	O K
15 min Winter	9.258	0.258	2.5	128.8	O K
30 min Winter	9.336	0.336	2.5	168.2	O K
60 min Winter	9.416	0.416	2.5	207.8	O K
120 min Winter	9.492	0.492	2.5	245.9	O K
180 min Winter	9.532	0.532	2.5	265.8	O K
240 min Winter	9.555	0.555	2.5	277.7	O K
360 min Winter	9.584	0.584	2.5	292.2	O K
480 min Winter	9.601	0.601	2.5	300.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
15 min Summer	138.153	0.0	107.5	19
30 min Summer	90.705	0.0	141.1	34
60 min Summer	56.713	0.0	186.8	64
120 min Summer	34.246	0.0	225.7	124
180 min Summer	25.149	0.0	248.5	182
240 min Summer	20.078	0.0	264.3	242
360 min Summer	14.585	0.0	287.4	362
480 min Summer	11.622	0.0	304.5	482
600 min Summer	9.738	0.0	317.9	600
720 min Summer	8.424	0.0	328.8	720
960 min Summer	6.697	0.0	344.8	858
1440 min Summer	4.839	0.0	357.9	1084
2160 min Summer	3.490	0.0	420.8	1472
2880 min Summer	2.766	0.0	444.2	1876
4320 min Summer	1.989	0.0	477.6	2680
5760 min Summer	1.573	0.0	508.3	3456
7200 min Summer	1.311	0.0	529.0	4176
8640 min Summer	1.129	0.0	546.0	4848
10080 min Summer	0.994	0.0	559.5	5552
15 min Winter	138.153	0.0	120.6	19
30 min Winter	90.705	0.0	157.2	33
60 min Winter	56.713	0.0	209.4	62
120 min Winter	34.246	0.0	252.7	122
180 min Winter	25.149	0.0	278.0	180
240 min Winter	20.078	0.0	295.4	238
360 min Winter	14.585	0.0	320.5	356
480 min Winter	11.622	0.0	338.5	472

10 Aldersgate Street
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Aberfeldy Village
Block A1 A2



Date 20/10/2022

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Source Control 2020.1.3

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
600 min Winter	9.609	0.609	2.5	304.4	O K
720 min Winter	9.612	0.612	2.5	305.9	O K
960 min Winter	9.608	0.608	2.5	303.8	O K
1440 min Winter	9.576	0.576	2.5	288.0	O K
2160 min Winter	9.527	0.527	2.5	263.6	O K
2880 min Winter	9.476	0.476	2.5	237.8	O K
4320 min Winter	9.377	0.377	2.5	188.4	O K
5760 min Winter	9.293	0.293	2.5	146.6	O K
7200 min Winter	9.227	0.227	2.5	113.6	O K
8640 min Winter	9.178	0.178	2.4	89.0	O K
10080 min Winter	9.142	0.142	2.3	70.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
600 min Winter	9.738	0.0	351.9	588
720 min Winter	8.424	0.0	361.6	700
960 min Winter	6.697	0.0	371.3	924
1440 min Winter	4.839	0.0	365.9	1312
2160 min Winter	3.490	0.0	471.3	1620
2880 min Winter	2.766	0.0	497.4	2048
4320 min Winter	1.989	0.0	534.7	2892
5760 min Winter	1.573	0.0	569.5	3640
7200 min Winter	1.311	0.0	592.7	4328
8640 min Winter	1.129	0.0	611.9	5016
10080 min Winter	0.994	0.0	627.4	5656

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Aberfeldy Village
 Block A1 A2



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Source Control 2020.1.3

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 %	+40

Time Area Diagram

Total Area (ha) 0.450

Time (mins)		Area
From:	To:	(ha)
0	4	0.450

10 Aldersgate Street
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Block A1 A2



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Source Control 2020.1.3

Model Details

Storage is Online Cover Level (m) 10.000

Tank or Pond Structure

Invert Level (m) 9.000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	500.0	1.000	500.0

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0075-2500-1000-2500
Design Head (m)	1.000
Design Flow (l/s)	2.5
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	75
Invert Level (m)	9.000
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	2.5	Kick-Flo®	0.627	2.0
Flush-Flo™	0.307	2.5	Mean Flow over Head Range	-	2.2

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)	Depth (m)	Flow (l/s)
0.100	2.1	0.800	2.3	2.000	3.4	4.000	4.7	7.000	6.2
0.200	2.4	1.000	2.5	2.200	3.6	4.500	5.0	7.500	6.4
0.300	2.5	1.200	2.7	2.400	3.7	5.000	5.3	8.000	6.6
0.400	2.5	1.400	2.9	2.600	3.9	5.500	5.5	8.500	6.8
0.500	2.4	1.600	3.1	3.000	4.1	6.000	5.7	9.000	7.0
0.600	2.1	1.800	3.3	3.500	4.5	6.500	6.0	9.500	7.1

10 Aldersgate Street
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Aberfeldy Village
 Block B1, B2



Date 20/10/2022
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Source Control 2020.1.3

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	9.327	0.327	1.4	81.9	O K
30 min Summer	9.428	0.428	1.4	106.9	O K
60 min Summer	9.530	0.530	1.4	132.5	O K
120 min Summer	9.628	0.628	1.4	157.1	O K
180 min Summer	9.680	0.680	1.4	169.9	O K
240 min Summer	9.711	0.711	1.4	177.7	Flood Risk
360 min Summer	9.748	0.748	1.4	187.1	Flood Risk
480 min Summer	9.769	0.769	1.4	192.2	Flood Risk
600 min Summer	9.779	0.779	1.4	194.8	Flood Risk
720 min Summer	9.783	0.783	1.4	195.8	Flood Risk
960 min Summer	9.779	0.779	1.4	194.7	Flood Risk
1440 min Summer	9.752	0.752	1.4	188.1	Flood Risk
2160 min Summer	9.712	0.712	1.4	177.9	Flood Risk
2880 min Summer	9.673	0.673	1.4	168.2	O K
4320 min Summer	9.599	0.599	1.4	149.7	O K
5760 min Summer	9.525	0.525	1.4	131.3	O K
7200 min Summer	9.444	0.444	1.4	111.1	O K
8640 min Summer	9.378	0.378	1.4	94.5	O K
10080 min Summer	9.322	0.322	1.4	80.4	O K
15 min Winter	9.367	0.367	1.4	91.8	O K
30 min Winter	9.480	0.480	1.4	120.0	O K
60 min Winter	9.595	0.595	1.4	148.7	O K
120 min Winter	9.706	0.706	1.4	176.6	Flood Risk
180 min Winter	9.765	0.765	1.4	191.4	Flood Risk
240 min Winter	9.802	0.802	1.4	200.4	Flood Risk
360 min Winter	9.847	0.847	1.4	211.7	Flood Risk
480 min Winter	9.873	0.873	1.4	218.2	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	138.153	0.0	79.0	19
30 min Summer	90.705	0.0	101.3	34
60 min Summer	56.713	0.0	134.3	64
120 min Summer	34.246	0.0	161.7	124
180 min Summer	25.149	0.0	177.6	184
240 min Summer	20.078	0.0	188.3	242
360 min Summer	14.585	0.0	202.6	362
480 min Summer	11.622	0.0	210.3	482
600 min Summer	9.738	0.0	212.2	602
720 min Summer	8.424	0.0	211.6	722
960 min Summer	6.697	0.0	208.3	960
1440 min Summer	4.839	0.0	199.7	1224
2160 min Summer	3.490	0.0	300.1	1600
2880 min Summer	2.766	0.0	316.6	2016
4320 min Summer	1.989	0.0	338.1	2852
5760 min Summer	1.573	0.0	362.0	3688
7200 min Summer	1.311	0.0	376.9	4392
8640 min Summer	1.129	0.0	389.3	5104
10080 min Summer	0.994	0.0	399.5	5848
15 min Winter	138.153	0.0	88.0	19
30 min Winter	90.705	0.0	109.0	33
60 min Winter	56.713	0.0	150.2	64
120 min Winter	34.246	0.0	180.5	122
180 min Winter	25.149	0.0	197.3	180
240 min Winter	20.078	0.0	207.6	240
360 min Winter	14.585	0.0	216.2	356
480 min Winter	11.622	0.0	216.8	472

10 Aldersgate Street
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Block B1, B2



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Source Control 2020.1.3

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
600 min Winter	9.888	0.888	1.4	221.9	Flood Risk
720 min Winter	9.895	0.895	1.4	223.8	Flood Risk
960 min Winter	9.897	0.897	1.4	224.2	Flood Risk
1440 min Winter	9.871	0.871	1.4	217.8	Flood Risk
2160 min Winter	9.819	0.819	1.4	204.9	Flood Risk
2880 min Winter	9.768	0.768	1.4	192.0	Flood Risk
4320 min Winter	9.663	0.663	1.4	165.8	O K
5760 min Winter	9.558	0.558	1.4	139.4	O K
7200 min Winter	9.433	0.433	1.4	108.2	O K
8640 min Winter	9.336	0.336	1.4	83.9	O K
10080 min Winter	9.259	0.259	1.4	64.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
600 min Winter	9.738	0.0	216.0	588
720 min Winter	8.424	0.0	214.6	702
960 min Winter	6.697	0.0	211.5	924
1440 min Winter	4.839	0.0	205.1	1354
2160 min Winter	3.490	0.0	335.8	1688
2880 min Winter	2.766	0.0	353.9	2160
4320 min Winter	1.989	0.0	369.0	3072
5760 min Winter	1.573	0.0	405.5	3984
7200 min Winter	1.311	0.0	422.2	4688
8640 min Winter	1.129	0.0	436.1	5368
10080 min Winter	0.994	0.0	447.7	6048

10 Aldersgate Street
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EC1A 4HJ

Aberfeldy Village
Block B1, B2



Date 20/10/2022

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Source Control 2020.1.3

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 %	+40

Time Area Diagram

Total Area (ha) 0.320

Time (mins) Area
From: To: (ha)

0 4 0.320

10 Aldersgate Street
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Aberfeldy Village
 Block B1, B2



Date 20/10/2022
 File Block B1, B2 Rev2.SRCX

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Innovyze Source Control 2020.1.3

Model Details

Storage is Online Cover Level (m) 10.000

Tank or Pond Structure

Invert Level (m) 9.000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	250.0	1.000	250.0

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0058-1500-1000-1500
 Design Head (m) 1.000
 Design Flow (l/s) 1.5
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available Yes
 Diameter (mm) 58
 Invert Level (m) 9.000
 Minimum Outlet Pipe Diameter (mm) 75
 Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	1.5	Kick-Flo®	0.515	1.1
Flush-Flo™	0.253	1.4	Mean Flow over Head Range	-	1.2

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)	Depth (m)	Flow (l/s)
0.100	1.2	0.800	1.4	2.000	2.0	4.000	2.8	7.000	3.7
0.200	1.4	1.000	1.5	2.200	2.1	4.500	3.0	7.500	3.8
0.300	1.4	1.200	1.6	2.400	2.2	5.000	3.1	8.000	3.9
0.400	1.3	1.400	1.7	2.600	2.3	5.500	3.3	8.500	4.0
0.500	1.2	1.600	1.9	3.000	2.5	6.000	3.4	9.000	4.1
0.600	1.2	1.800	2.0	3.500	2.7	6.500	3.5	9.500	4.2

10 Aldersgate Street
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Aberfeldy Village
 Block B3



Date 08/02/2022
 File Block B3.SRCX

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Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
15 min Summer	9.298	0.298	1.1	38.8	O K
30 min Summer	9.388	0.388	1.1	50.4	O K
60 min Summer	9.477	0.477	1.1	62.1	O K
120 min Summer	9.558	0.558	1.1	72.6	O K
180 min Summer	9.596	0.596	1.1	77.5	O K
240 min Summer	9.615	0.615	1.1	79.9	O K
360 min Summer	9.630	0.630	1.1	81.9	O K
480 min Summer	9.630	0.630	1.1	81.9	O K
600 min Summer	9.622	0.622	1.1	80.9	O K
720 min Summer	9.612	0.612	1.1	79.6	O K
960 min Summer	9.593	0.593	1.1	77.0	O K
1440 min Summer	9.552	0.552	1.1	71.8	O K
2160 min Summer	9.492	0.492	1.1	63.9	O K
2880 min Summer	9.426	0.426	1.1	55.3	O K
4320 min Summer	9.319	0.319	1.1	41.4	O K
5760 min Summer	9.237	0.237	1.1	30.9	O K
7200 min Summer	9.180	0.180	1.1	23.4	O K
8640 min Summer	9.139	0.139	1.1	18.1	O K
10080 min Summer	9.111	0.111	1.0	14.5	O K
15 min Winter	9.335	0.335	1.1	43.5	O K
30 min Winter	9.436	0.436	1.1	56.7	O K
60 min Winter	9.537	0.537	1.1	69.9	O K
120 min Winter	9.630	0.630	1.1	81.8	O K
180 min Winter	9.674	0.674	1.1	87.6	O K
240 min Winter	9.697	0.697	1.1	90.6	O K
360 min Winter	9.718	0.718	1.1	93.4	Flood Risk
480 min Winter	9.723	0.723	1.1	94.0	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
15 min Summer	138.153	0.0	38.9	19
30 min Summer	90.705	0.0	51.1	34
60 min Summer	56.713	0.0	64.7	64
120 min Summer	34.246	0.0	78.2	122
180 min Summer	25.149	0.0	86.1	182
240 min Summer	20.078	0.0	91.7	242
360 min Summer	14.585	0.0	99.9	362
480 min Summer	11.622	0.0	106.1	480
600 min Summer	9.738	0.0	111.1	582
720 min Summer	8.424	0.0	115.3	628
960 min Summer	6.697	0.0	122.2	752
1440 min Summer	4.839	0.0	132.1	1012
2160 min Summer	3.490	0.0	144.0	1432
2880 min Summer	2.766	0.0	152.1	1816
4320 min Summer	1.989	0.0	163.9	2552
5760 min Summer	1.573	0.0	173.2	3280
7200 min Summer	1.311	0.0	180.3	3960
8640 min Summer	1.129	0.0	186.3	4592
10080 min Summer	0.994	0.0	191.3	5336
15 min Winter	138.153	0.0	43.6	19
30 min Winter	90.705	0.0	57.3	33
60 min Winter	56.713	0.0	72.5	62
120 min Winter	34.246	0.0	87.6	122
180 min Winter	25.149	0.0	96.5	180
240 min Winter	20.078	0.0	102.7	238
360 min Winter	14.585	0.0	111.9	352
480 min Winter	11.622	0.0	118.8	466

10 Aldersgate Street
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Aberfeldy Village
Block B3



Date 08/02/2022

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Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
600 min Winter	9.719	0.719	1.1	93.5	Flood Risk
720 min Winter	9.709	0.709	1.1	92.2	Flood Risk
960 min Winter	9.682	0.682	1.1	88.6	O K
1440 min Winter	9.631	0.631	1.1	82.0	O K
2160 min Winter	9.548	0.548	1.1	71.2	O K
2880 min Winter	9.452	0.452	1.1	58.8	O K
4320 min Winter	9.288	0.288	1.1	37.4	O K
5760 min Winter	9.182	0.182	1.1	23.6	O K
7200 min Winter	9.120	0.120	1.1	15.6	O K
8640 min Winter	9.086	0.086	1.0	11.2	O K
10080 min Winter	9.071	0.071	0.9	9.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
600 min Winter	9.738	0.0	124.4	576
720 min Winter	8.424	0.0	129.1	680
960 min Winter	6.697	0.0	136.7	788
1440 min Winter	4.839	0.0	147.5	1084
2160 min Winter	3.490	0.0	161.3	1556
2880 min Winter	2.766	0.0	170.4	1988
4320 min Winter	1.989	0.0	183.7	2684
5760 min Winter	1.573	0.0	194.0	3352
7200 min Winter	1.311	0.0	202.0	3968
8640 min Winter	1.129	0.0	208.7	4584
10080 min Winter	0.994	0.0	214.3	5240

10 Aldersgate Street
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Aberfeldy Village
 Block B3



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Source Control 2020.1

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 %	+40

Time Area Diagram

Total Area (ha) 0.153

Time (mins)		Area
From:	To:	(ha)
0	4	0.153

10 Aldersgate Street
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EC1A 4HJ

Aberfeldy Village
Block B3



Date 08/02/2022
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Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 10.000

Tank or Pond Structure

Invert Level (m) 9.000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	130.0	1.000	130.0

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0053-1300-1000-1300
Design Head (m)	1.000
Design Flow (l/s)	1.3
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	53
Invert Level (m)	9.000
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	1.3	Kick-Flo®	0.477	0.9
Flush-Flo™	0.236	1.1	Mean Flow over Head Range	-	1.1

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)	Depth (m)	Flow (l/s)
0.100	1.0	0.800	1.2	2.000	1.8	4.000	2.4	7.000	3.2
0.200	1.1	1.000	1.3	2.200	1.9	4.500	2.6	7.500	3.3
0.300	1.1	1.200	1.4	2.400	1.9	5.000	2.7	8.000	3.4
0.400	1.1	1.400	1.5	2.600	2.0	5.500	2.8	8.500	3.5
0.500	1.0	1.600	1.6	3.000	2.1	6.000	2.9	9.000	3.6
0.600	1.0	1.800	1.7	3.500	2.3	6.500	3.1	9.500	3.6

10 Aldersgate Street
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Aberfeldy Village
Block B4



Date 08/02/2022
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Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	9.320	0.320	0.8	32.0	O K
30 min Summer	9.417	0.417	0.8	41.7	O K
60 min Summer	9.513	0.513	0.8	51.3	O K
120 min Summer	9.601	0.601	0.8	60.1	O K
180 min Summer	9.642	0.642	0.8	64.2	O K
240 min Summer	9.663	0.663	0.8	66.3	O K
360 min Summer	9.682	0.682	0.8	68.2	O K
480 min Summer	9.684	0.684	0.8	68.4	O K
600 min Summer	9.677	0.677	0.8	67.7	O K
720 min Summer	9.668	0.668	0.8	66.8	O K
960 min Summer	9.649	0.649	0.8	64.9	O K
1440 min Summer	9.611	0.611	0.8	61.1	O K
2160 min Summer	9.556	0.556	0.8	55.6	O K
2880 min Summer	9.504	0.504	0.8	50.4	O K
4320 min Summer	9.396	0.396	0.8	39.6	O K
5760 min Summer	9.298	0.298	0.8	29.8	O K
7200 min Summer	9.225	0.225	0.8	22.5	O K
8640 min Summer	9.172	0.172	0.8	17.2	O K
10080 min Summer	9.135	0.135	0.8	13.5	O K
15 min Winter	9.359	0.359	0.8	35.9	O K
30 min Winter	9.469	0.469	0.8	46.9	O K
60 min Winter	9.577	0.577	0.8	57.7	O K
120 min Winter	9.677	0.677	0.8	67.7	O K
180 min Winter	9.726	0.726	0.9	72.6	Flood Risk
240 min Winter	9.752	0.752	0.9	75.2	Flood Risk
360 min Winter	9.778	0.778	0.9	77.8	Flood Risk
480 min Winter	9.786	0.786	0.9	78.6	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	138.153	0.0	32.1	19
30 min Summer	90.705	0.0	42.2	34
60 min Summer	56.713	0.0	53.4	64
120 min Summer	34.246	0.0	64.4	122
180 min Summer	25.149	0.0	71.0	182
240 min Summer	20.078	0.0	75.6	242
360 min Summer	14.585	0.0	82.3	362
480 min Summer	11.622	0.0	87.4	480
600 min Summer	9.738	0.0	91.6	594
720 min Summer	8.424	0.0	95.0	642
960 min Summer	6.697	0.0	100.6	760
1440 min Summer	4.839	0.0	108.6	1024
2160 min Summer	3.490	0.0	118.6	1444
2880 min Summer	2.766	0.0	125.3	1848
4320 min Summer	1.989	0.0	135.1	2640
5760 min Summer	1.573	0.0	142.7	3344
7200 min Summer	1.311	0.0	148.5	4040
8640 min Summer	1.129	0.0	153.4	4680
10080 min Summer	0.994	0.0	157.6	5352
15 min Winter	138.153	0.0	36.0	19
30 min Winter	90.705	0.0	47.1	33
60 min Winter	56.713	0.0	59.8	62
120 min Winter	34.246	0.0	72.2	122
180 min Winter	25.149	0.0	79.5	180
240 min Winter	20.078	0.0	84.6	238
360 min Winter	14.585	0.0	92.2	352
480 min Winter	11.622	0.0	97.9	466

10 Aldersgate Street
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Aberfeldy Village
Block B4



Date 08/02/2022

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Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
600 min Winter	9.783	0.783	0.9	78.3	Flood Risk
720 min Winter	9.775	0.775	0.9	77.5	Flood Risk
960 min Winter	9.749	0.749	0.9	74.9	Flood Risk
1440 min Winter	9.701	0.701	0.9	70.1	Flood Risk
2160 min Winter	9.624	0.624	0.8	62.4	O K
2880 min Winter	9.548	0.548	0.8	54.8	O K
4320 min Winter	9.384	0.384	0.8	38.4	O K
5760 min Winter	9.244	0.244	0.8	24.4	O K
7200 min Winter	9.156	0.156	0.8	15.6	O K
8640 min Winter	9.106	0.106	0.8	10.6	O K
10080 min Winter	9.078	0.078	0.7	7.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
600 min Winter	9.738	0.0	102.5	576
720 min Winter	8.424	0.0	106.3	684
960 min Winter	6.697	0.0	112.5	810
1440 min Winter	4.839	0.0	120.6	1094
2160 min Winter	3.490	0.0	132.8	1556
2880 min Winter	2.766	0.0	140.3	2016
4320 min Winter	1.989	0.0	151.3	2852
5760 min Winter	1.573	0.0	159.8	3512
7200 min Winter	1.311	0.0	166.4	4112
8640 min Winter	1.129	0.0	171.9	4752
10080 min Winter	0.994	0.0	176.5	5344

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Aberfeldy Village
Block B4



Date 08/02/2022

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Source Control 2020.1

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 %	+40

Time Area Diagram

Total Area (ha) 0.126

Time (mins) Area
From: To: (ha)

0 4 0.126

10 Aldersgate Street
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Aberfeldy Village
 Block B4



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Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 10.000

Tank or Pond Structure

Invert Level (m) 9.000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	100.0	1.000	100.0

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0047-1000-1000-1000
 Design Head (m) 1.000
 Design Flow (l/s) 1.0
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available Yes
 Diameter (mm) 47
 Invert Level (m) 9.000
 Minimum Outlet Pipe Diameter (mm) 75
 Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	1.0	Kick-Flo®	0.415	0.7
Flush-Flo™	0.205	0.8	Mean Flow over Head Range	-	0.8

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)	Depth (m)	Flow (l/s)
0.100	0.8	0.800	0.9	2.000	1.4	4.000	1.9	7.000	2.4
0.200	0.8	1.000	1.0	2.200	1.4	4.500	2.0	7.500	2.5
0.300	0.8	1.200	1.1	2.400	1.5	5.000	2.1	8.000	2.6
0.400	0.7	1.400	1.2	2.600	1.5	5.500	2.2	8.500	2.7
0.500	0.7	1.600	1.2	3.000	1.6	6.000	2.3	9.000	2.7
0.600	0.8	1.800	1.3	3.500	1.8	6.500	2.3	9.500	2.8

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Aberfeldy Village
Block B5



Date 08/02/2022
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Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	9.384	0.384	0.8	7.7	O K
30 min Summer	9.488	0.488	0.8	9.8	O K
60 min Summer	9.566	0.566	0.8	11.3	O K
120 min Summer	9.592	0.592	0.8	11.8	O K
180 min Summer	9.579	0.579	0.8	11.6	O K
240 min Summer	9.559	0.559	0.8	11.2	O K
360 min Summer	9.517	0.517	0.8	10.3	O K
480 min Summer	9.476	0.476	0.8	9.5	O K
600 min Summer	9.434	0.434	0.8	8.7	O K
720 min Summer	9.387	0.387	0.8	7.7	O K
960 min Summer	9.306	0.306	0.8	6.1	O K
1440 min Summer	9.192	0.192	0.8	3.8	O K
2160 min Summer	9.105	0.105	0.8	2.1	O K
2880 min Summer	9.071	0.071	0.7	1.4	O K
4320 min Summer	9.050	0.050	0.5	1.0	O K
5760 min Summer	9.040	0.040	0.4	0.8	O K
7200 min Summer	9.035	0.035	0.3	0.7	O K
8640 min Summer	9.032	0.032	0.3	0.6	O K
10080 min Summer	9.030	0.030	0.3	0.6	O K
15 min Winter	9.434	0.434	0.8	8.7	O K
30 min Winter	9.552	0.552	0.8	11.0	O K
60 min Winter	9.644	0.644	0.8	12.9	O K
120 min Winter	9.684	0.684	0.8	13.7	O K
180 min Winter	9.667	0.667	0.8	13.3	O K
240 min Winter	9.642	0.642	0.8	12.8	O K
360 min Winter	9.584	0.584	0.8	11.7	O K
480 min Winter	9.525	0.525	0.8	10.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	138.153	0.0	8.3	18
30 min Summer	90.705	0.0	10.9	33
60 min Summer	56.713	0.0	13.6	62
120 min Summer	34.246	0.0	16.4	116
180 min Summer	25.149	0.0	18.1	144
240 min Summer	20.078	0.0	19.3	176
360 min Summer	14.585	0.0	21.0	246
480 min Summer	11.622	0.0	22.3	316
600 min Summer	9.738	0.0	23.4	386
720 min Summer	8.424	0.0	24.3	448
960 min Summer	6.697	0.0	25.7	568
1440 min Summer	4.839	0.0	27.9	796
2160 min Summer	3.490	0.0	30.1	1128
2880 min Summer	2.766	0.0	31.9	1472
4320 min Summer	1.989	0.0	34.4	2200
5760 min Summer	1.573	0.0	36.2	2936
7200 min Summer	1.311	0.0	37.7	3584
8640 min Summer	1.129	0.0	39.0	4368
10080 min Summer	0.994	0.0	40.1	5048
15 min Winter	138.153	0.0	9.3	18
30 min Winter	90.705	0.0	12.2	32
60 min Winter	56.713	0.0	15.2	60
120 min Winter	34.246	0.0	18.4	116
180 min Winter	25.149	0.0	20.3	162
240 min Winter	20.078	0.0	21.6	188
360 min Winter	14.585	0.0	23.5	266
480 min Winter	11.622	0.0	25.0	342

10 Aldersgate Street
London
EC1A 4HJ

Aberfeldy Village
Block B5



Date 08/02/2022

Designed by LB

File Block B5.SRCX

Checked by GB

Innovyze

Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
600 min Winter	9.463	0.463	0.8	9.3	O K
720 min Winter	9.391	0.391	0.8	7.8	O K
960 min Winter	9.268	0.268	0.8	5.4	O K
1440 min Winter	9.129	0.129	0.8	2.6	O K
2160 min Winter	9.066	0.066	0.7	1.3	O K
2880 min Winter	9.050	0.050	0.5	1.0	O K
4320 min Winter	9.038	0.038	0.4	0.8	O K
5760 min Winter	9.032	0.032	0.3	0.6	O K
7200 min Winter	9.029	0.029	0.3	0.6	O K
8640 min Winter	9.026	0.026	0.2	0.5	O K
10080 min Winter	9.024	0.024	0.2	0.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
600 min Winter	9.738	0.0	26.2	416
720 min Winter	8.424	0.0	27.2	484
960 min Winter	6.697	0.0	28.8	598
1440 min Winter	4.839	0.0	31.2	808
2160 min Winter	3.490	0.0	33.8	1120
2880 min Winter	2.766	0.0	35.7	1472
4320 min Winter	1.989	0.0	38.5	2164
5760 min Winter	1.573	0.0	40.6	2936
7200 min Winter	1.311	0.0	42.3	3640
8640 min Winter	1.129	0.0	43.7	4392
10080 min Winter	0.994	0.0	44.9	5016

10 Aldersgate Street
 London
 EC1A 4HJ

Aberfeldy Village
 Block B5



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Source Control 2020.1

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 %	+40

Time Area Diagram

Total Area (ha) 0.032

Time (mins)		Area
From:	To:	(ha)
0	4	0.032

10 Aldersgate Street
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EC1A 4HJ

Aberfeldy Village
Block B5



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Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 10.000

Tank or Pond Structure

Invert Level (m) 9.000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	20.0	1.000	20.0

Hydro-Brake® Optimum Outflow Control

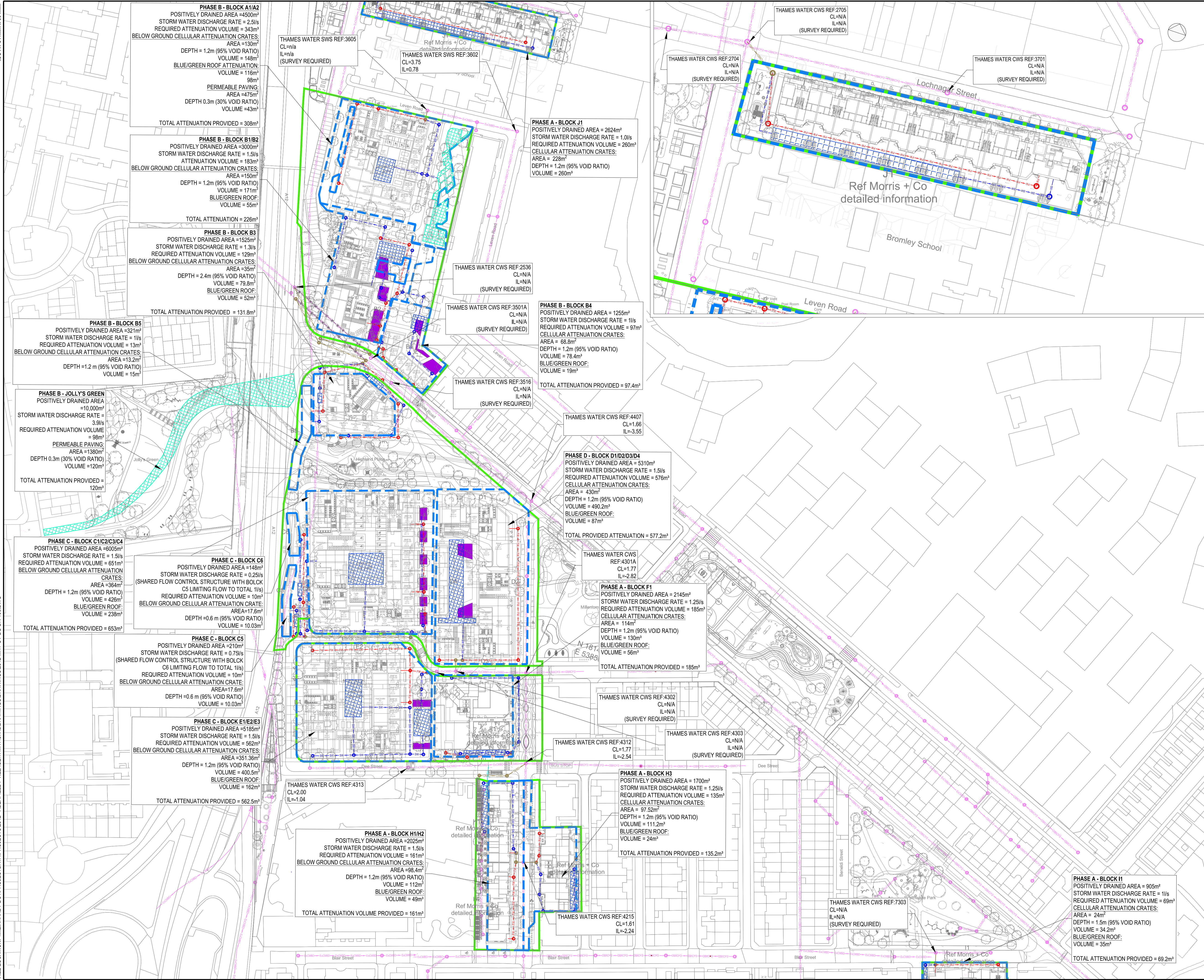
Unit Reference	MD-SHE-0047-1000-1000-1000
Design Head (m)	1.000
Design Flow (l/s)	1.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	47
Invert Level (m)	9.000
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	1.0	Kick-Flo®	0.415	0.7
Flush-Flo™	0.205	0.8	Mean Flow over Head Range	-	0.8

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)	Depth (m)	Flow (l/s)
0.100	0.8	0.800	0.9	2.000	1.4	4.000	1.9	7.000	2.4
0.200	0.8	1.000	1.0	2.200	1.4	4.500	2.0	7.500	2.5
0.300	0.8	1.200	1.1	2.400	1.5	5.000	2.1	8.000	2.6
0.400	0.7	1.400	1.2	2.600	1.5	5.500	2.2	8.500	2.7
0.500	0.7	1.600	1.2	3.000	1.6	6.000	2.3	9.000	2.7
0.600	0.8	1.800	1.3	3.500	1.8	6.500	2.3	9.500	2.8

ISO A1 841mm x 594mm
 DATE: 20/10/2022
 FILE LOCATION: \\MEINHARDT\DC\PROJECTS\2812 - ABERFELDY VILLAGE1 - MHT\CIVIL\DRAWINGS\2812\2812-MHT-CV-BG-DR-100.DWG



ISSUED FOR INFORMATION

REV	DESCRIPTION	BY	DATE
P01	STAGE 2 ISSUE	LH	20/08/21
P02	SUSTAINABILITY PRESENTATION	LB	25/08/21
P03	DRAFT STAGE 2 - ISSUED FOR PLANNING	LH	17/09/21
P04	ISSUED FOR PLANNING	LB	14/10/21
P05	REVISED PLANNING ISSUE	LB	07/03/22
P06	REVISED PLANNING ISSUE	LB	20/10/22

- NOTES:**
- DO NOT SCALE FROM THIS DRAWING
 - ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE
 - THIS DRAWING IS FOR INFORMATION ONLY.
 - DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND CONSULTANTS DRAWINGS AND SPECIFICATIONS.
 - PERMEABLE PAVING TO BE UTILIZED IN PRIVATELY MANAGED PUBLIC SPACE WHERE FEASIBLE.
 - THIS DRAWING IS BASED ON:
 - THAMES WATER ASSET RECORDS DATED NOVEMBER 2020
 - LEVITT BERNSTEIN ARCHITECTURAL MASTERPLAN3663 - LB - ZZ - 00 - DR - 000201 - Illustrative Scheme - Lower Ground Floor Plan - 1 AND - LB - ZZ - 28 - DR - 000206 - Illustrative Scheme - Roof Plan - 1 RECEIVED OCTOBER 2022
 - TOPOGRAPHICAL & UTILITIES COMBINED SURVEY FULL SITE V2
- TOTAL DISCHARGE RATE FROM SITE IS EQUAL TO THE GREENFIELD RUNOFF RATE OF 22.4 L/S.

KEY:

	ASSUMED PROPERTY BOUNDARY
	PROPOSED SURFACE WATER SEWER
	EXISTING SURFACE WATER SEWER
	PROPOSED FOUL WATER SEWER
	EXISTING FOUL WATER SEWER
	PROPOSED COMBINED WATER SEWER
	EXISTING COMBINED WATER SEWER
	ABANDONED SEWER
	PROPOSED SURFACE WATER MANHOLE
	EXISTING FOUL WATER MANHOLE
	PROPOSED FOUL WATER MANHOLE
	EXISTING COMBINED WATER SEWER
	PROPOSED COMBINED WATER MANHOLE
	PROPOSED BELOW GROUND SURFACE WATER ATTENUATION TANK
	SUDS PLANTER (BIO-RETENTION)
	ASSUMED POSITIVELY DRAINED BLOCK AREA
	PERMEABLE PAVING

CDM RESIDUAL CIVIL / STRUCTURAL DESIGN RISKS

MEINHARDT
 10 Aldersgate Street, London EC1A 4JU
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 www.meinhardt.co.uk

PROJECT
ABERFELDY VILLAGE MASTERPLAN

CLIENT
ECOWORLD

TITLE
BELOW GROUND DRAINAGE MASTERPLAN

DISCIPLINE	SCALE
CIVIL	1:1000

DRAWN	DESIGNED	CHECKED	APPROVED
LH	LH	LB	LB

DRAWING No
 2812-MHT-CV-BG-DR-100

ISSUE
P06