

The Civil Engineering Practice					Page 1	
11 Tungsten Building George Street Fishersgate BN41 1RA		Wicks Farm Ford				
Date 23/09/2020 File Detailed Reservoir Calc...		Designed by S Burgess Checked by SRM				
Innovyze		Source Control 2020.1				
<u>Summary of Results for 100 year Return Period (+40%)</u>						
	Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
	15 min Summer	4.131	0.281	20.0	1634.3	O K
	30 min Summer	4.224	0.374	20.0	2188.6	O K
	60 min Summer	4.325	0.475	20.0	2792.3	O K
	120 min Summer	4.394	0.544	20.0	3214.1	O K
	180 min Summer	4.436	0.586	20.0	3468.6	O K
	240 min Summer	4.462	0.612	20.0	3628.6	O K
	360 min Summer	4.488	0.638	20.0	3785.7	O K
	480 min Summer	4.501	0.651	20.0	3870.9	O K
	600 min Summer	4.508	0.658	20.0	3913.5	O K
	720 min Summer	4.510	0.660	20.0	3927.2	O K
	960 min Summer	4.505	0.655	20.0	3895.4	O K
	1440 min Summer	4.477	0.627	20.0	3723.0	O K
	2160 min Summer	4.437	0.587	20.0	3473.5	O K
	2880 min Summer	4.412	0.562	20.0	3322.4	O K
	4320 min Summer	4.380	0.530	20.0	3130.4	O K
	5760 min Summer	4.357	0.507	20.0	2987.5	O K
	7200 min Summer	4.338	0.488	20.0	2871.2	O K
	8640 min Summer	4.322	0.472	20.0	2776.7	O K
	10080 min Summer	4.310	0.460	20.0	2703.1	O K
	15 min Winter	4.147	0.297	20.0	1726.6	O K
	30 min Winter	4.245	0.395	20.0	2313.1	O K
	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
	15 min Summer	143.326	0.0	1657.9	23	
	30 min Summer	96.309	0.0	1666.8	38	
	60 min Summer	61.878	0.0	2865.2	68	
	120 min Summer	36.241	0.0	3257.2	128	
	180 min Summer	26.483	0.0	3235.7	186	
	240 min Summer	21.099	0.0	3225.6	246	
	360 min Summer	15.131	0.0	3217.9	366	
	480 min Summer	11.956	0.0	3215.7	484	
	600 min Summer	9.958	0.0	3215.9	604	
	720 min Summer	8.573	0.0	3216.9	724	
	960 min Summer	6.762	0.0	3220.0	962	
	1440 min Summer	4.848	0.0	3229.1	1440	
	2160 min Summer	3.496	0.0	5831.8	1816	
	2880 min Summer	2.789	0.0	6200.6	2192	
	4320 min Summer	2.056	0.0	5844.7	2988	
	5760 min Summer	1.675	0.0	7450.7	3856	
	7200 min Summer	1.442	0.0	8014.7	4680	
	8640 min Summer	1.284	0.0	8573.8	5528	
	10080 min Summer	1.173	0.0	9126.0	6352	
	15 min Winter	143.326	0.0	1700.4	23	
	30 min Winter	96.309	0.0	1653.6	37	
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Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
60 min Winter	4.351	0.501	20.0	2951.3	O K
120 min Winter	4.425	0.575	20.0	3404.1	O K
180 min Winter	4.470	0.620	20.0	3677.4	O K
240 min Winter	4.498	0.648	20.0	3851.0	O K
360 min Winter	4.527	0.677	20.0	4027.1	O K
480 min Winter	4.543	0.693	20.0	4127.7	O K
600 min Winter	4.552	0.702	20.0	4183.5	O K
720 min Winter	4.556	0.706	20.0	4209.2	O K
960 min Winter	4.555	0.705	20.0	4200.2	O K
1440 min Winter	4.534	0.684	20.0	4075.2	O K
2160 min Winter	4.489	0.639	20.0	3794.1	O K
2880 min Winter	4.455	0.605	20.0	3588.4	O K
4320 min Winter	4.409	0.559	20.0	3306.1	O K
5760 min Winter	4.368	0.518	20.0	3053.8	O K
7200 min Winter	4.330	0.480	20.0	2821.8	O K
8640 min Winter	4.294	0.444	20.0	2607.9	O K
10080 min Winter	4.259	0.409	20.0	2396.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
60 min Winter	61.878	0.0	3023.2	66	
120 min Winter	36.241	0.0	3241.7	126	
180 min Winter	26.483	0.0	3224.0	184	
240 min Winter	21.099	0.0	3217.1	242	
360 min Winter	15.131	0.0	3213.9	360	
480 min Winter	11.956	0.0	3214.7	476	
600 min Winter	9.958	0.0	3217.1	594	
720 min Winter	8.573	0.0	3219.8	710	
960 min Winter	6.762	0.0	3224.6	938	
1440 min Winter	4.848	0.0	3235.3	1386	
2160 min Winter	3.496	0.0	6157.5	2012	
2880 min Winter	2.789	0.0	6372.2	2280	
4320 min Winter	2.056	0.0	5962.8	3204	
5760 min Winter	1.675	0.0	7862.7	4152	
7200 min Winter	1.442	0.0	8457.6	5048	
8640 min Winter	1.284	0.0	9046.6	5968	
10080 min Winter	1.173	0.0	9636.2	6856	
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Model Details

Storage is Online Cover Level (m) 4.860

Tank or Pond Structure

Invert Level (m) 3.850

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	5722.0	0.700	6200.9	1.400	0.0	2.100	0.0
0.100	5789.2	0.750	6235.8	1.500	0.0	2.200	0.0
0.200	5856.9	0.751	0.0	1.600	0.0	2.300	0.0
0.300	5924.9	1.000	0.0	1.700	0.0	2.400	0.0
0.400	5993.3	1.100	0.0	1.800	0.0	2.500	0.0
0.500	6062.1	1.200	0.0	1.900	0.0		
0.600	6131.3	1.300	0.0	2.000	0.0		

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0199-2000-1000-2000

Design Head (m) 1.000

Design Flow (l/s) 20.0

Flush-Flo™ Calculated

Objective Minimise upstream storage

Application Surface

Sump Available Yes

Diameter (mm) 199

Invert Level (m) 3.557

Minimum Outlet Pipe Diameter (mm) 225

Suggested Manhole Diameter (mm) 1500

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	20.0
Flush-Flo™	0.340	20.0
Kick-Flo®	0.721	17.1
Mean Flow over Head Range	-	16.8

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)
0.100	6.9	1.200	21.8	3.000	33.8	7.000	51.0
0.200	18.7	1.400	23.5	3.500	36.4	7.500	52.7
0.300	19.9	1.600	25.0	4.000	38.9	8.000	54.4
0.400	19.9	1.800	26.5	4.500	41.1	8.500	56.0
0.500	19.5	2.000	27.8	5.000	43.3	9.000	57.6
0.600	19.0	2.200	29.1	5.500	45.3	9.500	59.1
0.800	18.0	2.400	30.4	6.000	47.3		
1.000	20.0	2.600	31.6	6.500	49.2		

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