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York House, Edison Park Dorcan Way Swindon, SN3 3RB	Cellular Storage Calculations Longlands Road Dewsbury	
Date April 2017 File 5585 - STORAGE TANK.SRCX	Designed by RT Checked by AD	
Elstree Computing Ltd	Source Control 2016.1	

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m ³)	Status
30 min Winter	115.446	0.746	0.0	8.0	8.0	25.5	0 K
60 min Winter	115.477	0.777	0.0	8.0	8.0	26.6	0 K
120 min Winter	115.387	0.687	0.0	8.0	8.0	23.5	0 K
180 min Winter	115.238	0.538	0.0	8.0	8.0	18.4	0 K
240 min Winter	115.080	0.380	0.0	8.0	8.0	13.0	0 K
360 min Winter	114.889	0.189	0.0	7.9	7.9	6.5	0 K
480 min Winter	114.835	0.135	0.0	7.0	7.0	4.6	0 K
600 min Winter	114.816	0.116	0.0	5.9	5.9	4.0	0 K
720 min Winter	114.805	0.105	0.0	5.2	5.2	3.6	0 K
960 min Winter	114.791	0.091	0.0	4.2	4.2	3.1	0 K
1440 min Winter	114.775	0.075	0.0	3.0	3.0	2.6	0 K
2160 min Winter	114.762	0.062	0.0	2.2	2.2	2.1	0 K
2880 min Winter	114.755	0.055	0.0	1.8	1.8	1.9	0 K
4320 min Winter	114.746	0.046	0.0	1.3	1.3	1.6	0 K
5760 min Winter	114.741	0.041	0.0	1.0	1.0	1.4	0 K
7200 min Winter	114.737	0.037	0.0	0.9	0.9	1.3	0 K
8640 min Winter	114.735	0.035	0.0	0.8	0.8	1.2	0 K
10080 min Winter	114.733	0.033	0.0	0.7	0.7	1.1	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
30 min Winter	83.789	0.0	35.9	29
60 min Winter	53.779	0.0	46.1	48
120 min Winter	33.337	0.0	57.1	86
180 min Winter	24.832	0.0	63.8	122
240 min Winter	20.006	0.0	68.5	150
360 min Winter	14.706	0.0	75.6	202
480 min Winter	11.818	0.0	81.0	250
600 min Winter	9.966	0.0	85.4	310
720 min Winter	8.665	0.0	89.1	370
960 min Winter	6.943	0.0	95.2	488
1440 min Winter	5.071	0.0	104.3	734
2160 min Winter	3.696	0.0	114.0	1100
2880 min Winter	2.949	0.0	121.3	1472
4320 min Winter	2.142	0.0	132.1	2176
5760 min Winter	1.705	0.0	140.2	2928
7200 min Winter	1.427	0.0	146.7	3544
8640 min Winter	1.235	0.0	152.4	4272
10080 min Winter	1.093	0.0	157.4	5056

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Model Details

Storage is Online Cover Level (m) 116.150

Cellular Storage Structure

Invert Level (m) 114.700 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	36.0	36.0	0.801	0.0	55.2
0.800	36.0	55.2			

Hydro-Brake Optimum® Outflow Control

Unit Reference MD-SHE-0134-8000-0800-8000
Design Head (m) 0.800
Design Flow (l/s) 8.0
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 134
Invert Level (m) 114.700
Minimum Outlet Pipe Diameter (mm) 150
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.800	8.0
Flush-Flo™	0.252	8.0
Kick-Flo®	0.559	6.8
Mean Flow over Head Range	-	6.8

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	4.8	1.200	9.7	3.000	14.9	7.000	22.4
0.200	7.9	1.400	10.4	3.500	16.1	7.500	23.2
0.300	8.0	1.600	11.1	4.000	17.1	8.000	23.9
0.400	7.8	1.800	11.7	4.500	18.1	8.500	24.5
0.500	7.4	2.000	12.3	5.000	19.1	9.000	25.3
0.600	7.0	2.200	12.9	5.500	20.0	9.500	26.0
0.800	8.0	2.400	13.4	6.000	20.8		
1.000	8.9	2.600	14.0	6.500	21.6		