

Polypipe Building Products Ltd							Page 1
Broomhouse Lane Edlington Doncaster DN12 1ES			Slathwaite Drive, Manchester Polystorm Attenuation Tank				
Date 13.11.20 File 55440.SRCX			Designed by C. Mars Checked by				
Micro Drainage			Source Control 2016.1				
<u>Summary of Results for 100 year Return Period (+40%)</u> Half Drain Time : 22 minutes.							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	99.092	0.492	0.0	3.0	3.0	4.9	O K
30 min Summer	99.215	0.615	0.0	3.0	3.0	6.1	O K
60 min Summer	99.230	0.630	0.0	3.0	3.0	6.3	O K
120 min Summer	99.153	0.553	0.0	3.0	3.0	5.5	O K
180 min Summer	99.029	0.429	0.0	3.0	3.0	4.3	O K
240 min Summer	98.924	0.324	0.0	3.0	3.0	3.2	O K
360 min Summer	98.785	0.185	0.0	3.0	3.0	1.8	O K
480 min Summer	98.721	0.121	0.0	2.8	2.8	1.2	O K
600 min Summer	98.697	0.097	0.0	2.5	2.5	1.0	O K
720 min Summer	98.685	0.085	0.0	2.2	2.2	0.8	O K
960 min Summer	98.671	0.071	0.0	1.8	1.8	0.7	O K
1440 min Summer	98.657	0.057	0.0	1.3	1.3	0.6	O K
2160 min Summer	98.647	0.047	0.0	1.0	1.0	0.5	O K
2880 min Summer	98.642	0.042	0.0	0.8	0.8	0.4	O K
4320 min Summer	98.635	0.035	0.0	0.6	0.6	0.3	O K
5760 min Summer	98.631	0.031	0.0	0.4	0.4	0.3	O K
7200 min Summer	98.628	0.028	0.0	0.4	0.4	0.3	O K
8640 min Summer	98.626	0.026	0.0	0.3	0.3	0.3	O K
10080 min Summer	98.624	0.024	0.0	0.3	0.3	0.2	O K
15 min Winter	99.175	0.575	0.0	3.0	3.0	5.7	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
15 min Summer	118.613	0.0	7.6	21			
30 min Summer	79.413	0.0	10.1	31			
60 min Summer	50.812	0.0	13.0	48			
120 min Summer	31.468	0.0	16.0	82			
180 min Summer	23.466	0.0	17.9	114			
240 min Summer	18.940	0.0	19.3	142			
360 min Summer	13.882	0.0	21.2	198			
480 min Summer	11.143	0.0	22.7	254			
600 min Summer	9.389	0.0	23.9	312			
720 min Summer	8.158	0.0	25.0	370			
960 min Summer	6.531	0.0	26.6	492			
1440 min Summer	4.764	0.0	29.2	734			
2160 min Summer	3.468	0.0	31.8	1080			
2880 min Summer	2.766	0.0	33.8	1460			
4320 min Summer	2.007	0.0	36.8	2160			
5760 min Summer	1.596	0.0	39.1	2920			
7200 min Summer	1.336	0.0	40.9	3672			
8640 min Summer	1.154	0.0	42.4	4400			
10080 min Summer	1.020	0.0	43.7	4968			
15 min Winter	118.613	0.0	8.5	22			
©1982-2016 XP Solutions							

Polypipe Building Products Ltd						Page 2	
Broomhouse Lane Edlington Doncaster DN12 1ES			Slathwaite Drive, Manchester Polystorm Attenuation Tank				
Date 13.11.20 File 55440.SRCX			Designed by C. Mars Checked by				
Micro Drainage			Source Control 2016.1				
<u>Summary of Results for 100 year Return Period (+40%)</u>							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	99.312	0.712	0.0	3.0	3.0	7.1	O K
60 min Winter	99.317	0.717	0.0	3.0	3.0	7.1	O K
120 min Winter	99.185	0.585	0.0	3.0	3.0	5.8	O K
180 min Winter	98.982	0.382	0.0	3.0	3.0	3.8	O K
240 min Winter	98.836	0.236	0.0	3.0	3.0	2.4	O K
360 min Winter	98.707	0.107	0.0	2.7	2.7	1.1	O K
480 min Winter	98.685	0.085	0.0	2.2	2.2	0.8	O K
600 min Winter	98.673	0.073	0.0	1.9	1.9	0.7	O K
720 min Winter	98.666	0.066	0.0	1.6	1.6	0.7	O K
960 min Winter	98.657	0.057	0.0	1.3	1.3	0.6	O K
1440 min Winter	98.647	0.047	0.0	1.0	1.0	0.5	O K
2160 min Winter	98.639	0.039	0.0	0.7	0.7	0.4	O K
2880 min Winter	98.635	0.035	0.0	0.6	0.6	0.3	O K
4320 min Winter	98.629	0.029	0.0	0.4	0.4	0.3	O K
5760 min Winter	98.626	0.026	0.0	0.3	0.3	0.3	O K
7200 min Winter	98.624	0.024	0.0	0.3	0.3	0.2	O K
8640 min Winter	98.622	0.022	0.0	0.2	0.2	0.2	O K
10080 min Winter	98.621	0.021	0.0	0.2	0.2	0.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
30 min Winter	79.413	0.0	11.3	32			
60 min Winter	50.812	0.0	14.5	52			
120 min Winter	31.468	0.0	18.0	88			
180 min Winter	23.466	0.0	20.1	120			
240 min Winter	18.940	0.0	21.6	146			
360 min Winter	13.882	0.0	23.8	194			
480 min Winter	11.143	0.0	25.5	252			
600 min Winter	9.389	0.0	26.8	312			
720 min Winter	8.158	0.0	28.0	370			
960 min Winter	6.531	0.0	29.8	488			
1440 min Winter	4.764	0.0	32.6	732			
2160 min Winter	3.468	0.0	35.7	1080			
2880 min Winter	2.766	0.0	37.9	1452			
4320 min Winter	2.007	0.0	41.3	2144			
5760 min Winter	1.596	0.0	43.8	2864			
7200 min Winter	1.336	0.0	45.8	3576			
8640 min Winter	1.154	0.0	47.5	4392			
10080 min Winter	1.020	0.0	48.9	5072			
©1982-2016 XP Solutions							

Polypipe Building Products Ltd		Page 3
Broomhouse Lane Edlington Doncaster DN12 1ES	Slathwaite Drive, Manchester Polystorm Attenuation Tank	
Date 13.11.20 File 55440.SRCX	Designed by C. Mars Checked by	
Micro Drainage Source Control 2016.1		

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)	18.000	Shortest Storm (mins)	15
Ratio R	0.360	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.034

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From:	To:	From:	To:	From:	To:
0	4 0.011	4	8 0.011	8	12 0.011

©1982-2016 XP Solutions

Polypipe Building Products Ltd		Page 4
Broomhouse Lane Edlington Doncaster DN12 1ES	Slathwaite Drive, Manchester Polystorm Attenuation Tank	
Date 13.11.20 File 55440.SRCX	Designed by C. Mars Checked by	
Micro Drainage Source Control 2016.1		

Model Details

Storage is Online Cover Level (m) 100.000

Cellular Storage Structure

Invert Level (m) 98.600 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	10.5	10.5	0.900	0.0	20.9
0.800	10.5	20.9			

Hydro-Brake Optimum® Outflow Control

Unit Reference MD-SHE-0085-3000-0800-3000
Design Head (m) 0.800
Design Flow (l/s) 3.0
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 85
Invert Level (m) 98.600
Minimum Outlet Pipe Diameter (mm) 100
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.800	3.0
Flush-Flo™	0.239	3.0
Kick-Flo®	0.517	2.5
Mean Flow over Head Range	-	2.6

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	2.6	1.200	3.6	3.000	5.5	7.000	8.3
0.200	3.0	1.400	3.9	3.500	6.0	7.500	8.5
0.300	3.0	1.600	4.1	4.000	6.3	8.000	8.8
0.400	2.9	1.800	4.4	4.500	6.7	8.500	9.0
0.500	2.6	2.000	4.6	5.000	7.0	9.000	9.3
0.600	2.6	2.200	4.8	5.500	7.4	9.500	9.6
0.800	3.0	2.400	5.0	6.000	7.7		
1.000	3.3	2.600	5.2	6.500	8.0		

©1982-2016 XP Solutions