

Polypipe Civils				Page 1																																																																																																																																																																																																																			
Charnwood Business Park		44977																																																																																																																																																																																																																					
Loughborough		Middleton Road, Felpham																																																																																																																																																																																																																					
Leicestershire LE11 1LE		3m x 3m x 0.4m																																																																																																																																																																																																																					
Date 01/12/20		Designed by TR																																																																																																																																																																																																																					
File T-MD-44977_TR_MD6 (92m²...		Checked by																																																																																																																																																																																																																					
Micro Drainage		Source Control 2016.1																																																																																																																																																																																																																					
<u>Summary of Results for 10 year Return Period (+40%)</u> Half Drain Time : 523 minutes. <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>98.747</td><td>0.147</td><td>0.0</td><td>1.3</td><td>O K</td></tr><tr><td>30 min Summer</td><td>98.791</td><td>0.191</td><td>0.0</td><td>1.6</td><td>O K</td></tr><tr><td>60 min Summer</td><td>98.836</td><td>0.236</td><td>0.0</td><td>2.0</td><td>O K</td></tr><tr><td>120 min Summer</td><td>98.880</td><td>0.280</td><td>0.1</td><td>2.4</td><td>O K</td></tr><tr><td>180 min Summer</td><td>98.902</td><td>0.302</td><td>0.1</td><td>2.6</td><td>O K</td></tr><tr><td>240 min Summer</td><td>98.914</td><td>0.314</td><td>0.1</td><td>2.7</td><td>O K</td></tr><tr><td>360 min Summer</td><td>98.924</td><td>0.324</td><td>0.1</td><td>2.8</td><td>O K</td></tr><tr><td>480 min Summer</td><td>98.926</td><td>0.326</td><td>0.1</td><td>2.8</td><td>O K</td></tr><tr><td>600 min Summer</td><td>98.927</td><td>0.327</td><td>0.1</td><td>2.8</td><td>O K</td></tr><tr><td>720 min Summer</td><td>98.926</td><td>0.326</td><td>0.1</td><td>2.8</td><td>O K</td></tr><tr><td>960 min Summer</td><td>98.922</td><td>0.322</td><td>0.1</td><td>2.8</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>98.908</td><td>0.308</td><td>0.1</td><td>2.6</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>98.883</td><td>0.283</td><td>0.1</td><td>2.4</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>98.858</td><td>0.258</td><td>0.1</td><td>2.2</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>98.812</td><td>0.212</td><td>0.0</td><td>1.8</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>98.773</td><td>0.173</td><td>0.0</td><td>1.5</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>98.740</td><td>0.140</td><td>0.0</td><td>1.2</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>98.713</td><td>0.113</td><td>0.0</td><td>1.0</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>98.691</td><td>0.091</td><td>0.0</td><td>0.8</td><td>O K</td></tr><tr><td>15 min Winter</td><td>98.764</td><td>0.164</td><td>0.0</td><td>1.4</td><td>O K</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>76.214</td><td>0.0</td><td>19</td></tr><tr><td>30 min Summer</td><td>50.290</td><td>0.0</td><td>33</td></tr><tr><td>60 min Summer</td><td>31.908</td><td>0.0</td><td>62</td></tr><tr><td>120 min Summer</td><td>19.755</td><td>0.0</td><td>122</td></tr><tr><td>180 min Summer</td><td>14.804</td><td>0.0</td><td>182</td></tr><tr><td>240 min Summer</td><td>12.028</td><td>0.0</td><td>242</td></tr><tr><td>360 min Summer</td><td>8.957</td><td>0.0</td><td>358</td></tr><tr><td>480 min Summer</td><td>7.262</td><td>0.0</td><td>412</td></tr><tr><td>600 min Summer</td><td>6.168</td><td>0.0</td><td>476</td></tr><tr><td>720 min Summer</td><td>5.396</td><td>0.0</td><td>540</td></tr><tr><td>960 min Summer</td><td>4.369</td><td>0.0</td><td>674</td></tr><tr><td>1440 min Summer</td><td>3.241</td><td>0.0</td><td>952</td></tr><tr><td>2160 min Summer</td><td>2.402</td><td>0.0</td><td>1364</td></tr><tr><td>2880 min Summer</td><td>1.942</td><td>0.0</td><td>1760</td></tr><tr><td>4320 min Summer</td><td>1.437</td><td>0.0</td><td>2548</td></tr><tr><td>5760 min Summer</td><td>1.161</td><td>0.0</td><td>3288</td></tr><tr><td>7200 min Summer</td><td>0.983</td><td>0.0</td><td>4032</td></tr><tr><td>8640 min Summer</td><td>0.859</td><td>0.0</td><td>4752</td></tr><tr><td>10080 min Summer</td><td>0.766</td><td>0.0</td><td>5440</td></tr><tr><td>15 min Winter</td><td>76.214</td><td>0.0</td><td>19</td></tr></tbody></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	98.747	0.147	0.0	1.3	O K	30 min Summer	98.791	0.191	0.0	1.6	O K	60 min Summer	98.836	0.236	0.0	2.0	O K	120 min Summer	98.880	0.280	0.1	2.4	O K	180 min Summer	98.902	0.302	0.1	2.6	O K	240 min Summer	98.914	0.314	0.1	2.7	O K	360 min Summer	98.924	0.324	0.1	2.8	O K	480 min Summer	98.926	0.326	0.1	2.8	O K	600 min Summer	98.927	0.327	0.1	2.8	O K	720 min Summer	98.926	0.326	0.1	2.8	O K	960 min Summer	98.922	0.322	0.1	2.8	O K	1440 min Summer	98.908	0.308	0.1	2.6	O K	2160 min Summer	98.883	0.283	0.1	2.4	O K	2880 min Summer	98.858	0.258	0.1	2.2	O K	4320 min Summer	98.812	0.212	0.0	1.8	O K	5760 min Summer	98.773	0.173	0.0	1.5	O K	7200 min Summer	98.740	0.140	0.0	1.2	O K	8640 min Summer	98.713	0.113	0.0	1.0	O K	10080 min Summer	98.691	0.091	0.0	0.8	O K	15 min Winter	98.764	0.164	0.0	1.4	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	76.214	0.0	19	30 min Summer	50.290	0.0	33	60 min Summer	31.908	0.0	62	120 min Summer	19.755	0.0	122	180 min Summer	14.804	0.0	182	240 min Summer	12.028	0.0	242	360 min Summer	8.957	0.0	358	480 min Summer	7.262	0.0	412	600 min Summer	6.168	0.0	476	720 min Summer	5.396	0.0	540	960 min Summer	4.369	0.0	674	1440 min Summer	3.241	0.0	952	2160 min Summer	2.402	0.0	1364	2880 min Summer	1.942	0.0	1760	4320 min Summer	1.437	0.0	2548	5760 min Summer	1.161	0.0	3288	7200 min Summer	0.983	0.0	4032	8640 min Summer	0.859	0.0	4752	10080 min Summer	0.766	0.0	5440	15 min Winter	76.214	0.0	19
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status																																																																																																																																																																																																																		
15 min Summer	98.747	0.147	0.0	1.3	O K																																																																																																																																																																																																																		
30 min Summer	98.791	0.191	0.0	1.6	O K																																																																																																																																																																																																																		
60 min Summer	98.836	0.236	0.0	2.0	O K																																																																																																																																																																																																																		
120 min Summer	98.880	0.280	0.1	2.4	O K																																																																																																																																																																																																																		
180 min Summer	98.902	0.302	0.1	2.6	O K																																																																																																																																																																																																																		
240 min Summer	98.914	0.314	0.1	2.7	O K																																																																																																																																																																																																																		
360 min Summer	98.924	0.324	0.1	2.8	O K																																																																																																																																																																																																																		
480 min Summer	98.926	0.326	0.1	2.8	O K																																																																																																																																																																																																																		
600 min Summer	98.927	0.327	0.1	2.8	O K																																																																																																																																																																																																																		
720 min Summer	98.926	0.326	0.1	2.8	O K																																																																																																																																																																																																																		
960 min Summer	98.922	0.322	0.1	2.8	O K																																																																																																																																																																																																																		
1440 min Summer	98.908	0.308	0.1	2.6	O K																																																																																																																																																																																																																		
2160 min Summer	98.883	0.283	0.1	2.4	O K																																																																																																																																																																																																																		
2880 min Summer	98.858	0.258	0.1	2.2	O K																																																																																																																																																																																																																		
4320 min Summer	98.812	0.212	0.0	1.8	O K																																																																																																																																																																																																																		
5760 min Summer	98.773	0.173	0.0	1.5	O K																																																																																																																																																																																																																		
7200 min Summer	98.740	0.140	0.0	1.2	O K																																																																																																																																																																																																																		
8640 min Summer	98.713	0.113	0.0	1.0	O K																																																																																																																																																																																																																		
10080 min Summer	98.691	0.091	0.0	0.8	O K																																																																																																																																																																																																																		
15 min Winter	98.764	0.164	0.0	1.4	O K																																																																																																																																																																																																																		
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)																																																																																																																																																																																																																				
15 min Summer	76.214	0.0	19																																																																																																																																																																																																																				
30 min Summer	50.290	0.0	33																																																																																																																																																																																																																				
60 min Summer	31.908	0.0	62																																																																																																																																																																																																																				
120 min Summer	19.755	0.0	122																																																																																																																																																																																																																				
180 min Summer	14.804	0.0	182																																																																																																																																																																																																																				
240 min Summer	12.028	0.0	242																																																																																																																																																																																																																				
360 min Summer	8.957	0.0	358																																																																																																																																																																																																																				
480 min Summer	7.262	0.0	412																																																																																																																																																																																																																				
600 min Summer	6.168	0.0	476																																																																																																																																																																																																																				
720 min Summer	5.396	0.0	540																																																																																																																																																																																																																				
960 min Summer	4.369	0.0	674																																																																																																																																																																																																																				
1440 min Summer	3.241	0.0	952																																																																																																																																																																																																																				
2160 min Summer	2.402	0.0	1364																																																																																																																																																																																																																				
2880 min Summer	1.942	0.0	1760																																																																																																																																																																																																																				
4320 min Summer	1.437	0.0	2548																																																																																																																																																																																																																				
5760 min Summer	1.161	0.0	3288																																																																																																																																																																																																																				
7200 min Summer	0.983	0.0	4032																																																																																																																																																																																																																				
8640 min Summer	0.859	0.0	4752																																																																																																																																																																																																																				
10080 min Summer	0.766	0.0	5440																																																																																																																																																																																																																				
15 min Winter	76.214	0.0	19																																																																																																																																																																																																																				
©1982-2016 XP Solutions																																																																																																																																																																																																																							

Polypipe Civils				Page 2	
Charnwood Business Park		44977			
Loughborough		Middleton Road, Felpham			
Leicestershire LE11 1LE		3m x 3m x 0.4m			
Date 01/12/20		Designed by TR			
File T-MD-44977_TR_MD6 (92m²...		Checked by			
Micro Drainage		Source Control 2016.1			
<u>Summary of Results for 10 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	98.815	0.215	0.0	1.8	O K
60 min Winter	98.866	0.266	0.1	2.3	O K
120 min Winter	98.917	0.317	0.1	2.7	O K
180 min Winter	98.943	0.343	0.1	2.9	O K
240 min Winter	98.958	0.358	0.1	3.1	O K
360 min Winter	98.973	0.373	0.1	3.2	O K
480 min Winter	98.977	0.377	0.1	3.2	O K
600 min Winter	98.975	0.375	0.1	3.2	O K
720 min Winter	98.974	0.374	0.1	3.2	O K
960 min Winter	98.968	0.368	0.1	3.1	O K
1440 min Winter	98.945	0.345	0.1	3.0	O K
2160 min Winter	98.906	0.306	0.1	2.6	O K
2880 min Winter	98.868	0.268	0.1	2.3	O K
4320 min Winter	98.799	0.199	0.0	1.7	O K
5760 min Winter	98.743	0.143	0.0	1.2	O K
7200 min Winter	98.698	0.098	0.0	0.8	O K
8640 min Winter	98.666	0.066	0.0	0.6	O K
10080 min Winter	98.650	0.050	0.0	0.4	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	50.290	0.0	33		
60 min Winter	31.908	0.0	62		
120 min Winter	19.755	0.0	120		
180 min Winter	14.804	0.0	178		
240 min Winter	12.028	0.0	236		
360 min Winter	8.957	0.0	348		
480 min Winter	7.262	0.0	454		
600 min Winter	6.168	0.0	542		
720 min Winter	5.396	0.0	570		
960 min Winter	4.369	0.0	722		
1440 min Winter	3.241	0.0	1028		
2160 min Winter	2.402	0.0	1472		
2880 min Winter	1.942	0.0	1900		
4320 min Winter	1.437	0.0	2684		
5760 min Winter	1.161	0.0	3456		
7200 min Winter	0.983	0.0	4112		
8640 min Winter	0.859	0.0	4752		
10080 min Winter	0.766	0.0	5160		
©1982-2016 XP Solutions					

Polypipe Civils		Page 3
Charnwood Business Park Loughborough Leicestershire LE11 1LE	44977 Middleton Road, Felpham 3m x 3m x 0.4m	
Date 01/12/20 File T-MD-44977_TR_MD6 (92m²...	Designed by TR Checked by	
Micro Drainage Source Control 2016.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.009

Time (mins)	Area
From:	To: (ha)
0	4 0.009

©1982-2016 XP Solutions

Polypipe Civils		Page 4
Charnwood Business Park Loughborough Leicestershire LE11 1LE	44977 Middleton Road, Felpham 3m x 3m x 0.4m	
Date 01/12/20 File T-MD-44977_TR_MD6 (92m²...	Designed by TR 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 3.0
Infiltration Coefficient Base (m/hr) 0.04561 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.04561

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	9.0	9.0	0.500	0.0	13.8
0.400	9.0	13.8			

©1982-2016 XP Solutions