

MJA Consulting			Page 1																																																																																																																																																																																																																			
Monarch House Barton Lane OX14 3NB		Westergate & Eastergate Parking Court 2 1:100+40%cc																																																																																																																																																																																																																				
Date 07/03/2018 File Parking Court 2.srcx		Designed by C.Pendle Checked by																																																																																																																																																																																																																				
Innovyze		Source Control 2017.1.2																																																																																																																																																																																																																				
<u>Summary of Results for 100 year Return Period (+40%)</u> Half Drain Time : 69 minutes. <table><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><tr><td>15 min Summer</td><td>99.313</td><td>0.313</td><td>1.9</td><td>8.8</td><td>O K</td></tr><tr><td>30 min Summer</td><td>99.350</td><td>0.350</td><td>2.1</td><td>11.0</td><td>O K</td></tr><tr><td>60 min Summer</td><td>99.371</td><td>0.371</td><td>2.2</td><td>12.4</td><td>O K</td></tr><tr><td>120 min Summer</td><td>99.379</td><td>0.379</td><td>2.3</td><td>12.9</td><td>O K</td></tr><tr><td>180 min Summer</td><td>99.373</td><td>0.373</td><td>2.2</td><td>12.5</td><td>O K</td></tr><tr><td>240 min Summer</td><td>99.363</td><td>0.363</td><td>2.2</td><td>11.9</td><td>O K</td></tr><tr><td>360 min Summer</td><td>99.345</td><td>0.345</td><td>2.1</td><td>10.7</td><td>O K</td></tr><tr><td>480 min Summer</td><td>99.327</td><td>0.327</td><td>2.0</td><td>9.6</td><td>O K</td></tr><tr><td>600 min Summer</td><td>99.310</td><td>0.310</td><td>1.9</td><td>8.7</td><td>O K</td></tr><tr><td>720 min Summer</td><td>99.295</td><td>0.295</td><td>1.8</td><td>7.9</td><td>O K</td></tr><tr><td>960 min Summer</td><td>99.270</td><td>0.270</td><td>1.6</td><td>6.5</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>99.229</td><td>0.229</td><td>1.4</td><td>4.7</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>99.188</td><td>0.188</td><td>1.1</td><td>3.2</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>99.159</td><td>0.159</td><td>1.0</td><td>2.3</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>99.123</td><td>0.123</td><td>0.7</td><td>1.4</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>99.100</td><td>0.100</td><td>0.6</td><td>0.9</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>99.085</td><td>0.085</td><td>0.5</td><td>0.6</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>99.074</td><td>0.074</td><td>0.4</td><td>0.5</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>99.065</td><td>0.065</td><td>0.4</td><td>0.4</td><td>O K</td></tr><tr><td>15 min Winter</td><td>99.332</td><td>0.332</td><td>2.0</td><td>9.9</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>127.204</td><td>0.0</td><td>17</td></tr><tr><td>30 min Summer</td><td>85.821</td><td>0.0</td><td>31</td></tr><tr><td>60 min Summer</td><td>55.250</td><td>0.0</td><td>50</td></tr><tr><td>120 min Summer</td><td>34.307</td><td>0.0</td><td>84</td></tr><tr><td>180 min Summer</td><td>25.552</td><td>0.0</td><td>118</td></tr><tr><td>240 min Summer</td><td>20.570</td><td>0.0</td><td>152</td></tr><tr><td>360 min Summer</td><td>15.173</td><td>0.0</td><td>218</td></tr><tr><td>480 min Summer</td><td>12.206</td><td>0.0</td><td>284</td></tr><tr><td>600 min Summer</td><td>10.302</td><td>0.0</td><td>348</td></tr><tr><td>720 min Summer</td><td>8.963</td><td>0.0</td><td>410</td></tr><tr><td>960 min Summer</td><td>7.189</td><td>0.0</td><td>530</td></tr><tr><td>1440 min Summer</td><td>5.257</td><td>0.0</td><td>776</td></tr><tr><td>2160 min Summer</td><td>3.836</td><td>0.0</td><td>1128</td></tr><tr><td>2880 min Summer</td><td>3.063</td><td>0.0</td><td>1496</td></tr><tr><td>4320 min Summer</td><td>2.226</td><td>0.0</td><td>2204</td></tr><tr><td>5760 min Summer</td><td>1.773</td><td>0.0</td><td>2936</td></tr><tr><td>7200 min Summer</td><td>1.487</td><td>0.0</td><td>3672</td></tr><tr><td>8640 min Summer</td><td>1.289</td><td>0.0</td><td>4384</td></tr><tr><td>10080 min Summer</td><td>1.142</td><td>0.0</td><td>5136</td></tr><tr><td>15 min Winter</td><td>127.204</td><td>0.0</td><td>17</td></tr></table>					Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	99.313	0.313	1.9	8.8	O K	30 min Summer	99.350	0.350	2.1	11.0	O K	60 min Summer	99.371	0.371	2.2	12.4	O K	120 min Summer	99.379	0.379	2.3	12.9	O K	180 min Summer	99.373	0.373	2.2	12.5	O K	240 min Summer	99.363	0.363	2.2	11.9	O K	360 min Summer	99.345	0.345	2.1	10.7	O K	480 min Summer	99.327	0.327	2.0	9.6	O K	600 min Summer	99.310	0.310	1.9	8.7	O K	720 min Summer	99.295	0.295	1.8	7.9	O K	960 min Summer	99.270	0.270	1.6	6.5	O K	1440 min Summer	99.229	0.229	1.4	4.7	O K	2160 min Summer	99.188	0.188	1.1	3.2	O K	2880 min Summer	99.159	0.159	1.0	2.3	O K	4320 min Summer	99.123	0.123	0.7	1.4	O K	5760 min Summer	99.100	0.100	0.6	0.9	O K	7200 min Summer	99.085	0.085	0.5	0.6	O K	8640 min Summer	99.074	0.074	0.4	0.5	O K	10080 min Summer	99.065	0.065	0.4	0.4	O K	15 min Winter	99.332	0.332	2.0	9.9	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	127.204	0.0	17	30 min Summer	85.821	0.0	31	60 min Summer	55.250	0.0	50	120 min Summer	34.307	0.0	84	180 min Summer	25.552	0.0	118	240 min Summer	20.570	0.0	152	360 min Summer	15.173	0.0	218	480 min Summer	12.206	0.0	284	600 min Summer	10.302	0.0	348	720 min Summer	8.963	0.0	410	960 min Summer	7.189	0.0	530	1440 min Summer	5.257	0.0	776	2160 min Summer	3.836	0.0	1128	2880 min Summer	3.063	0.0	1496	4320 min Summer	2.226	0.0	2204	5760 min Summer	1.773	0.0	2936	7200 min Summer	1.487	0.0	3672	8640 min Summer	1.289	0.0	4384	10080 min Summer	1.142	0.0	5136	15 min Winter	127.204	0.0	17
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status																																																																																																																																																																																																																	
15 min Summer	99.313	0.313	1.9	8.8	O K																																																																																																																																																																																																																	
30 min Summer	99.350	0.350	2.1	11.0	O K																																																																																																																																																																																																																	
60 min Summer	99.371	0.371	2.2	12.4	O K																																																																																																																																																																																																																	
120 min Summer	99.379	0.379	2.3	12.9	O K																																																																																																																																																																																																																	
180 min Summer	99.373	0.373	2.2	12.5	O K																																																																																																																																																																																																																	
240 min Summer	99.363	0.363	2.2	11.9	O K																																																																																																																																																																																																																	
360 min Summer	99.345	0.345	2.1	10.7	O K																																																																																																																																																																																																																	
480 min Summer	99.327	0.327	2.0	9.6	O K																																																																																																																																																																																																																	
600 min Summer	99.310	0.310	1.9	8.7	O K																																																																																																																																																																																																																	
720 min Summer	99.295	0.295	1.8	7.9	O K																																																																																																																																																																																																																	
960 min Summer	99.270	0.270	1.6	6.5	O K																																																																																																																																																																																																																	
1440 min Summer	99.229	0.229	1.4	4.7	O K																																																																																																																																																																																																																	
2160 min Summer	99.188	0.188	1.1	3.2	O K																																																																																																																																																																																																																	
2880 min Summer	99.159	0.159	1.0	2.3	O K																																																																																																																																																																																																																	
4320 min Summer	99.123	0.123	0.7	1.4	O K																																																																																																																																																																																																																	
5760 min Summer	99.100	0.100	0.6	0.9	O K																																																																																																																																																																																																																	
7200 min Summer	99.085	0.085	0.5	0.6	O K																																																																																																																																																																																																																	
8640 min Summer	99.074	0.074	0.4	0.5	O K																																																																																																																																																																																																																	
10080 min Summer	99.065	0.065	0.4	0.4	O K																																																																																																																																																																																																																	
15 min Winter	99.332	0.332	2.0	9.9	O K																																																																																																																																																																																																																	
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)																																																																																																																																																																																																																			
15 min Summer	127.204	0.0	17																																																																																																																																																																																																																			
30 min Summer	85.821	0.0	31																																																																																																																																																																																																																			
60 min Summer	55.250	0.0	50																																																																																																																																																																																																																			
120 min Summer	34.307	0.0	84																																																																																																																																																																																																																			
180 min Summer	25.552	0.0	118																																																																																																																																																																																																																			
240 min Summer	20.570	0.0	152																																																																																																																																																																																																																			
360 min Summer	15.173	0.0	218																																																																																																																																																																																																																			
480 min Summer	12.206	0.0	284																																																																																																																																																																																																																			
600 min Summer	10.302	0.0	348																																																																																																																																																																																																																			
720 min Summer	8.963	0.0	410																																																																																																																																																																																																																			
960 min Summer	7.189	0.0	530																																																																																																																																																																																																																			
1440 min Summer	5.257	0.0	776																																																																																																																																																																																																																			
2160 min Summer	3.836	0.0	1128																																																																																																																																																																																																																			
2880 min Summer	3.063	0.0	1496																																																																																																																																																																																																																			
4320 min Summer	2.226	0.0	2204																																																																																																																																																																																																																			
5760 min Summer	1.773	0.0	2936																																																																																																																																																																																																																			
7200 min Summer	1.487	0.0	3672																																																																																																																																																																																																																			
8640 min Summer	1.289	0.0	4384																																																																																																																																																																																																																			
10080 min Summer	1.142	0.0	5136																																																																																																																																																																																																																			
15 min Winter	127.204	0.0	17																																																																																																																																																																																																																			
©1982-2017 XP Solutions																																																																																																																																																																																																																						

MJA Consulting		Page 2			
Monarch House Barton Lane OX14 3NB	Westergate & Eastergate Parking Court 2 1:100+40%cc				
Date 07/03/2018 File Parking Court 2.srcx	Designed by C.Pendle Checked by				
Innovyze	Source Control 2017.1.2				
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	99.373	0.373	2.2	12.5	O K
60 min Winter	99.398	0.398	2.3	14.2	O K
120 min Winter	99.404	0.404	2.3	14.6	O K
180 min Winter	99.393	0.393	2.3	13.9	O K
240 min Winter	99.378	0.378	2.3	12.8	O K
360 min Winter	99.350	0.350	2.1	11.0	O K
480 min Winter	99.325	0.325	1.9	9.5	O K
600 min Winter	99.302	0.302	1.8	8.2	O K
720 min Winter	99.282	0.282	1.7	7.1	O K
960 min Winter	99.248	0.248	1.5	5.5	O K
1440 min Winter	99.199	0.199	1.2	3.5	O K
2160 min Winter	99.153	0.153	0.9	2.1	O K
2880 min Winter	99.124	0.124	0.7	1.4	O K
4320 min Winter	99.092	0.092	0.6	0.8	O K
5760 min Winter	99.073	0.073	0.4	0.5	O K
7200 min Winter	99.062	0.062	0.4	0.3	O K
8640 min Winter	99.053	0.053	0.3	0.3	O K
10080 min Winter	99.049	0.049	0.3	0.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	85.821	0.0	31		
60 min Winter	55.250	0.0	56		
120 min Winter	34.307	0.0	92		
180 min Winter	25.552	0.0	128		
240 min Winter	20.570	0.0	164		
360 min Winter	15.173	0.0	234		
480 min Winter	12.206	0.0	300		
600 min Winter	10.302	0.0	364		
720 min Winter	8.963	0.0	426		
960 min Winter	7.189	0.0	550		
1440 min Winter	5.257	0.0	792		
2160 min Winter	3.836	0.0	1144		
2880 min Winter	3.063	0.0	1496		
4320 min Winter	2.226	0.0	2204		
5760 min Winter	1.773	0.0	2888		
7200 min Winter	1.487	0.0	3648		
8640 min Winter	1.289	0.0	4272		
10080 min Winter	1.142	0.0	4992		
©1982-2017 XP Solutions					

MJA Consulting		Page 3
Monarch House Barton Lane OX14 3NB	Westergate & Eastergate Parking Court 2 1:100+40%cc	
Date 07/03/2018 File Parking Court 2.srcx	Designed by C.Pendle Checked by	
Innovyze Source Control 2017.1.2		

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)	19.500	Shortest Storm (mins)	15
Ratio R	0.342	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.042

Time (mins)	Area
From:	To: (ha)
0	4 0.042

©1982-2017 XP Solutions

MJA Consulting		Page 4
Monarch House Barton Lane OX14 3NB	Westergate & Eastergate Parking Court 2 1:100+40%cc	
Date 07/03/2018 File Parking Court 2.srcx	Designed by C.Pendle Checked by	
Innovyze Source Control 2017.1.2		

Model Details

Storage is Online Cover Level (m) 100.000

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.07200	Width (m)	15.0
Membrane Percolation (mm/hr)	1000	Length (m)	15.0
Max Percolation (l/s)	62.5	Slope (1:X)	40.0
Safety Factor	2.0	Depression Storage (mm)	0
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	99.000	Cap Volume Depth (m)	0.500

©1982-2017 XP Solutions