

1 Lister Road Middleton - Lancashire Porous Paving
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Date 07/08/2025 18:53
File POROUS PAVING REV A.SRCX
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Designed by DMS

Checked by DMS



Innovyze

Source Control 2020.1.3

Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 36 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	70.429	0.335	0.0	0.8	0.8	2.4	Flood Risk
	30 min Summer	70.499	0.405	0.0	0.9	0.9	2.9	Flood Risk
	60 min Summer	70.540	0.446	0.0	0.9	0.9	3.2	Flood Risk
	120 min Summer	70.539	0.445	0.0	0.9	0.9	3.2	Flood Risk
	180 min Summer	70.512	0.418	0.0	0.9	0.9	3.0	Flood Risk
	240 min Summer	70.480	0.386	0.0	0.9	0.9	2.8	Flood Risk
	360 min Summer	70.421	0.327	0.0	0.8	0.8	2.3	Flood Risk
	480 min Summer	70.376	0.282	0.0	0.7	0.7	2.0	Flood Risk
	600 min Summer	70.339	0.245	0.0	0.7	0.7	1.7	O K
	720 min Summer	70.310	0.216	0.0	0.6	0.6	1.5	O K
	960 min Summer	70.266	0.172	0.0	0.6	0.6	1.2	O K
	1440 min Summer	70.212	0.118	0.0	0.5	0.5	0.8	O K
	2160 min Summer	70.171	0.077	0.0	0.4	0.4	0.5	O K
	2880 min Summer	70.151	0.057	0.0	0.3	0.3	0.4	O K
	4320 min Summer	70.131	0.037	0.0	0.2	0.2	0.2	O K
	5760 min Summer	70.126	0.032	0.0	0.2	0.2	0.2	O K
	7200 min Summer	70.122	0.028	0.0	0.1	0.1	0.1	O K
	8640 min Summer	70.120	0.026	0.0	0.1	0.1	0.1	O K
10080	min Summer	70.118	0.024	0.0	0.1	0.1	0.1	O K
	15 min Winter	70.473	0.379	0.0	0.9	0.9	2.7	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
15 min Summer	122.610	0.0	2.9	16
30 min Summer	82.167	0.0	3.9	28
60 min Summer	52.627	0.0	5.0	44
120 min Summer	32.623	0.0	6.2	78
180 min Summer	24.339	0.0	7.0	112
240 min Summer	19.650	0.0	7.5	146
360 min Summer	14.410	0.0	8.3	210
480 min Summer	11.570	0.0	8.9	272
600 min Summer	9.751	0.0	9.4	332
720 min Summer	8.475	0.0	9.8	392
960 min Summer	6.786	0.0	10.4	512
1440 min Summer	4.953	0.0	11.4	750
2160 min Summer	3.607	0.0	12.4	1104
2880 min Summer	2.877	0.0	13.2	1468
4320 min Summer	2.088	0.0	14.3	2200
5760 min Summer	1.662	0.0	15.1	2936
7200 min Summer	1.391	0.0	15.8	3624
8640 min Summer	1.202	0.0	16.3	4360
10080 min Summer	1.062	0.0	16.8	5136
15 min Winter	122.610	0.0	3.2	16

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	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	70.556	0.462	0.0	0.9	0.9	3.3	Flood Risk
	60 min Winter	70.597	0.503	0.0	1.0	1.0	3.6	Flood Risk
	120 min Winter	70.581	0.487	0.0	1.0	1.0	3.5	Flood Risk
	180 min Winter	70.536	0.442	0.0	0.9	0.9	3.2	Flood Risk
	240 min Winter	70.488	0.394	0.0	0.9	0.9	2.8	Flood Risk
	360 min Winter	70.406	0.312	0.0	0.8	0.8	2.2	Flood Risk
	480 min Winter	70.347	0.253	0.0	0.7	0.7	1.8	O K
	600 min Winter	70.303	0.209	0.0	0.6	0.6	1.5	O K
	720 min Winter	70.269	0.175	0.0	0.6	0.6	1.2	O K
	960 min Winter	70.223	0.129	0.0	0.5	0.5	0.9	O K
	1440 min Winter	70.175	0.081	0.0	0.4	0.4	0.5	O K
	2160 min Winter	70.144	0.050	0.0	0.3	0.3	0.3	O K
	2880 min Winter	70.131	0.037	0.0	0.2	0.2	0.2	O K
	4320 min Winter	70.124	0.030	0.0	0.2	0.2	0.2	O K
	5760 min Winter	70.120	0.026	0.0	0.1	0.1	0.1	O K
	7200 min Winter	70.117	0.023	0.0	0.1	0.1	0.1	O K
	8640 min Winter	70.115	0.021	0.0	0.1	0.1	0.1	O K
	10080 min Winter	70.114	0.020	0.0	0.1	0.1	0.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
30 min Winter	82.167	0.0	4.4	29
60 min Winter	52.627	0.0	5.6	48
120 min Winter	32.623	0.0	7.0	86
180 min Winter	24.339	0.0	7.8	120
240 min Winter	19.650	0.0	8.4	156
360 min Winter	14.410	0.0	9.3	220
480 min Winter	11.570	0.0	10.0	282
600 min Winter	9.751	0.0	10.5	344
720 min Winter	8.475	0.0	10.9	404
960 min Winter	6.786	0.0	11.7	522
1440 min Winter	4.953	0.0	12.8	754
2160 min Winter	3.607	0.0	13.9	1108
2880 min Winter	2.877	0.0	14.8	1468
4320 min Winter	2.088	0.0	16.1	2200
5760 min Winter	1.662	0.0	17.0	2936
7200 min Winter	1.391	0.0	17.7	3648
8640 min Winter	1.202	0.0	18.3	4376
10080 min Winter	1.062	0.0	18.8	5096

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Innovyze		Source Control 2020.1.3																																		
Rainfall Details <table><tr><td>Rainfall Model</td><td>FSR</td><td>Winter Storms</td><td>Yes</td></tr><tr><td>Return Period (years)</td><td>100</td><td>Cv (Summer)</td><td>0.750</td></tr><tr><td>Region</td><td>England and Wales</td><td>Cv (Winter)</td><td>0.840</td></tr><tr><td>M5-60 (mm)</td><td>18.000</td><td>Shortest Storm (mins)</td><td>15</td></tr><tr><td>Ratio R</td><td>0.358</td><td>Longest Storm (mins)</td><td>10080</td></tr><tr><td>Summer Storms</td><td>Yes</td><td>Climate Change %</td><td>+45</td></tr></table> Time Area Diagram Total Area (ha) 0.013 <table><tr><th colspan="2">Time (mins)</th><th>Area</th></tr><tr><th>From:</th><th>To:</th><th>(ha)</th></tr><tr><td>0</td><td>4</td><td>0.013</td></tr></table>				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	0.358	Longest Storm (mins)	10080	Summer Storms	Yes	Climate Change %	+45	Time (mins)		Area	From:	To:	(ha)	0	4	0.013
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<u>Model Details</u> Storage is Online Cover Level (m) 70.650 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00000</td> <td>Width (m)</td> <td>3.5</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1</td> <td>Length (m)</td> <td>7.0</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>0.0</td> <td>Slope (1:X)</td> <td>400.0</td> </tr> <tr> <td>Safety Factor</td> <td>2.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>70.094</td> <td>Membrane Depth (m)</td> <td>0</td> </tr> </table> <u>Orifice Outflow Control</u> Diameter (m) 0.026 Discharge Coefficient 0.600 Invert Level (m) 70.094			Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.5	Membrane Percolation (mm/hr)	1	Length (m)	7.0	Max Percolation (l/s)	0.0	Slope (1:X)	400.0	Safety Factor	2.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	70.094	Membrane Depth (m)	0
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