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6 Old Marsh Farm Barns Welsh Road Sealand CH5 2LY	Rossett Road, Rossett Permeable Road Southern Site	
Date 25/06/2021 3:48 PM	Designed by CP	
File ROAD 1 PERMEABLE.SRCX	Checked by	
XP Solutions		Source Control 2020.1

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

Half Drain Time : 19 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	12.880	0.770	137.5	195.7	O K
30 min Summer	12.962	0.852	152.0	239.5	O K
60 min Summer	12.982	0.872	155.6	250.7	O K
120 min Summer	12.941	0.831	148.3	227.7	O K
180 min Summer	12.885	0.775	138.3	198.0	O K
240 min Summer	12.831	0.721	128.6	171.4	O K
360 min Summer	12.739	0.629	112.2	130.4	O K
480 min Summer	12.668	0.558	99.6	102.7	O K
600 min Summer	12.612	0.502	89.6	83.1	O K
720 min Summer	12.566	0.456	81.3	68.6	O K
960 min Summer	12.496	0.386	68.9	49.3	O K
1440 min Summer	12.408	0.298	53.1	29.2	O K
2160 min Summer	12.333	0.223	39.8	16.3	O K
2880 min Summer	12.289	0.179	31.9	10.5	O K
4320 min Summer	12.240	0.130	23.2	5.6	O K
5760 min Summer	12.213	0.103	18.4	3.5	O K
7200 min Summer	12.197	0.087	15.5	2.5	O K
8640 min Summer	12.185	0.075	13.3	1.9	O K
10080 min Summer	12.176	0.066	11.8	1.4	O K
15 min Winter	12.932	0.822	146.7	222.9	O K
30 min Winter	13.017	0.907	161.9	271.7	O K
60 min Winter	13.026	0.916	163.5	276.7	O K
120 min Winter	12.952	0.842	150.3	234.1	O K
180 min Winter	12.868	0.758	135.3	189.6	O K
240 min Winter	12.793	0.683	121.9	153.9	O K
360 min Winter	12.673	0.563	100.5	104.7	O K
480 min Winter	12.588	0.478	85.4	75.5	O K
600 min Winter	12.526	0.416	74.2	57.0	O K
720 min Winter	12.478	0.368	65.6	44.6	O K
960 min Winter	12.410	0.300	53.5	29.6	O K
1440 min Winter	12.331	0.221	39.5	16.2	O K
2160 min Winter	12.272	0.162	28.9	8.6	O K
2880 min Winter	12.239	0.129	23.1	5.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	117.683	0.0	20
30 min Summer	79.091	0.0	29
60 min Summer	50.812	0.0	46
120 min Summer	31.590	0.0	78
180 min Summer	23.602	0.0	110
240 min Summer	19.071	0.0	142
360 min Summer	14.006	0.0	202
480 min Summer	11.257	0.0	262
600 min Summer	9.495	0.0	322
720 min Summer	8.257	0.0	382
960 min Summer	6.618	0.0	500
1440 min Summer	4.836	0.0	738
2160 min Summer	3.526	0.0	1100
2880 min Summer	2.815	0.0	1468
4320 min Summer	2.045	0.0	2200
5760 min Summer	1.629	0.0	2936
7200 min Summer	1.364	0.0	3648
8640 min Summer	1.179	0.0	4352
10080 min Summer	1.043	0.0	5104
15 min Winter	117.683	0.0	21
30 min Winter	79.091	0.0	30
60 min Winter	50.812	0.0	48
120 min Winter	31.590	0.0	82
180 min Winter	23.602	0.0	116
240 min Winter	19.071	0.0	146
360 min Winter	14.006	0.0	208
480 min Winter	11.257	0.0	266
600 min Winter	9.495	0.0	324
720 min Winter	8.257	0.0	384
960 min Winter	6.618	0.0	500
1440 min Winter	4.836	0.0	738
2160 min Winter	3.526	0.0	1100
2880 min Winter	2.815	0.0	1456

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
4320 min Winter	12.204	0.094	16.7	2.9	O K
5760 min Winter	12.185	0.075	13.3	1.8	O K
7200 min Winter	12.173	0.063	11.2	1.3	O K
8640 min Winter	12.164	0.054	9.7	1.0	O K
10080 min Winter	12.159	0.049	8.7	0.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
4320 min Winter	2.045	0.0	2200
5760 min Winter	1.629	0.0	2896
7200 min Winter	1.364	0.0	3576
8640 min Winter	1.179	0.0	4288
10080 min Winter	1.043	0.0	5008

Rainfall Details

Rainfall Model	FSR	Ratio R	0.352	Cv (Winter)	0.840
Return Period (years)	100	Summer Storms	Yes	Shortest Storm (mins)	15
Region	England and Wales	Winter Storms	Yes	Longest Storm (mins)	10080
M5-60 (mm)	18.000	Cv (Summer)	0.750	Climate Change %	+40

Time Area Diagram

Total Area (ha) 1.393

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
From: To:		From: To:		From: To:	
0 4	0.464	4 8	0.464	8 12	0.464

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Model Details

Storage is Online Cover Level (m) 13.610

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.43812	Porosity	0.30	Slope (1:X)	400.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	12.110	Depression Storage (mm)	5
Max Percolation (l/s)	751.7	Width (m)	5.5	Evaporation (mm/day)	3
Safety Factor	1.5	Length (m)	492.0	Membrane Depth (m)	0