



**220 Elgar Road South
Reading
RG2 0BW**

***Micro Drainage Calculations
for Surface Water Drainage***

Prepared by:
Kazys Narbutas Consulting Limited

Unit 24B Romsey Industrial Estate,
Greatbridge Road,
Romsey. SO51 0HR

Tel: 07973 231468

KNC2508/MDC-A

Prepared by Kazys Narbutas Signed: 
BSc (Hons) CEng
MICE, MCIHT, AaPS Date: 10th December 2025

Revision	Description	Date	Initials
A	Initial issue	December 2025	KN

Section: Civils		 KAZYS NARBUTAS CONSULTING <i>Civil Engineering Consultant</i> Unit 24b, Romsey Industrial Estate, Greatbridge Road, Romsey, Hants. SO51 0HE Telephone: 01794 223146 Email: kazys.n@knc.email			
Project: 220 Elgar Road, Reading					
Client : Abri Homes					
Date: December 2025	Job No. KNC2508	Page No. 1	Chk:	By: KHN	Rev: A
Reference	Calculation Summary of MicroDrainage Calculations				Result
Previously developed brown field site having a calculated unrestricted flow into public surface water sewer of 16 lits/sec. Reduced discharge rate agreed with LLFA to be 3.0 lits/sec Volume of storage required for 100yr storm event with 45% climate change allowance (no 'urban creep' required) discharging into public sewer at 3.0lits/sec, calculated by MicroDrainage, and using FEH rainfall data = 65.4m³ Attenuation configuration- 91m² Polystorm cellular storage - PSMA1A 2x400mm wrapped with impermeable membrane providing 69.1m³ storage. Sited in public open space/play area, minimum depth of cover 600mm.					

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Summary of Results for 100 year Return Period (+45%) Half Drain Time : 219 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 Control (l/s)</th><th>Max Outflow (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>39.376</td><td>0.506</td><td>0.0</td><td>2.5</td><td>2.5</td><td>43.7</td><td>O K</td></tr><tr><td>30 min Summer</td><td>39.461</td><td>0.591</td><td>0.0</td><td>2.6</td><td>2.6</td><td>51.1</td><td>O K</td></tr><tr><td>60 min Summer</td><td>39.544</td><td>0.674</td><td>0.0</td><td>2.8</td><td>2.8</td><td>58.2</td><td>O K</td></tr><tr><td>120 min Summer</td><td>39.605</td><td>0.735</td><td>0.0</td><td>2.9</td><td>2.9</td><td>63.5</td><td>O K</td></tr><tr><td>180 min Summer</td><td>39.618</td><td>0.748</td><td>0.0</td><td>3.0</td><td>3.0</td><td>64.7</td><td>O K</td></tr><tr><td>240 min Summer</td><td>39.621</td><td>0.751</td><td>0.0</td><td>3.0</td><td>3.0</td><td>64.9</td><td>O K</td></tr><tr><td>360 min Summer</td><td>39.616</td><td>0.746</td><td>0.0</td><td>3.0</td><td>3.0</td><td>64.5</td><td>O K</td></tr><tr><td>480 min Summer</td><td>39.602</td><td>0.732</td><td>0.0</td><td>2.9</td><td>2.9</td><td>63.3</td><td>O K</td></tr><tr><td>600 min Summer</td><td>39.585</td><td>0.715</td><td>0.0</td><td>2.9</td><td>2.9</td><td>61.8</td><td>O K</td></tr><tr><td>720 min Summer</td><td>39.567</td><td>0.697</td><td>0.0</td><td>2.9</td><td>2.9</td><td>60.2</td><td>O K</td></tr><tr><td>960 min Summer</td><td>39.528</td><td>0.658</td><td>0.0</td><td>2.8</td><td>2.8</td><td>56.9</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>39.455</td><td>0.585</td><td>0.0</td><td>2.6</td><td>2.6</td><td>50.6</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>39.359</td><td>0.489</td><td>0.0</td><td>2.4</td><td>2.4</td><td>42.3</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>39.278</td><td>0.408</td><td>0.0</td><td>2.2</td><td>2.2</td><td>35.3</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>39.119</td><td>0.249</td><td>0.0</td><td>1.9</td><td>1.9</td><td>21.5</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>39.004</td><td>0.134</td><td>0.0</td><td>1.9</td><td>1.9</td><td>11.6</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>182.617</td><td>22</td></tr><tr><td>30 min Summer</td><td>109.552</td><td>37</td></tr><tr><td>60 min Summer</td><td>65.720</td><td>66</td></tr><tr><td>120 min Summer</td><td>39.426</td><td>124</td></tr><tr><td>180 min Summer</td><td>29.239</td><td>170</td></tr><tr><td>240 min Summer</td><td>23.652</td><td>198</td></tr><tr><td>360 min Summer</td><td>17.541</td><td>264</td></tr><tr><td>480 min Summer</td><td>14.189</td><td>332</td></tr><tr><td>600 min Summer</td><td>12.036</td><td>402</td></tr><tr><td>720 min Summer</td><td>10.523</td><td>472</td></tr><tr><td>960 min Summer</td><td>8.504</td><td>610</td></tr><tr><td>1440 min Summer</td><td>6.299</td><td>882</td></tr><tr><td>2160 min Summer</td><td>4.666</td><td>1276</td></tr><tr><td>2880 min Summer</td><td>3.771</td><td>1648</td></tr><tr><td>4320 min Summer</td><td>2.695</td><td>2384</td></tr><tr><td>5760 min Summer</td><td>2.124</td><td>3048</td></tr></table>								Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Outflow (l/s)	Max Volume (m³)	Status	15 min Summer	39.376	0.506	0.0	2.5	2.5	43.7	O K	30 min Summer	39.461	0.591	0.0	2.6	2.6	51.1	O K	60 min Summer	39.544	0.674	0.0	2.8	2.8	58.2	O K	120 min Summer	39.605	0.735	0.0	2.9	2.9	63.5	O K	180 min Summer	39.618	0.748	0.0	3.0	3.0	64.7	O K	240 min Summer	39.621	0.751	0.0	3.0	3.0	64.9	O K	360 min Summer	39.616	0.746	0.0	3.0	3.0	64.5	O K	480 min Summer	39.602	0.732	0.0	2.9	2.9	63.3	O K	600 min Summer	39.585	0.715	0.0	2.9	2.9	61.8	O K	720 min Summer	39.567	0.697	0.0	2.9	2.9	60.2	O K	960 min Summer	39.528	0.658	0.0	2.8	2.8	56.9	O K	1440 min Summer	39.455	0.585	0.0	2.6	2.6	50.6	O K	2160 min Summer	39.359	0.489	0.0	2.4	2.4	42.3	O K	2880 min Summer	39.278	0.408	0.0	2.2	2.2	35.3	O K	4320 min Summer	39.119	0.249	0.0	1.9	1.9	21.5	O K	5760 min Summer	39.004	0.134	0.0	1.9	1.9	11.6	O K	Storm Event	Rain (mm/hr)	Time-Peak (mins)	15 min Summer	182.617	22	30 min Summer	109.552	37	60 min Summer	65.720	66	120 min Summer	39.426	124	180 min Summer	29.239	170	240 min Summer	23.652	198	360 min Summer	17.541	264	480 min Summer	14.189	332	600 min Summer	12.036	402	720 min Summer	10.523	472	960 min Summer	8.504	610	1440 min Summer	6.299	882	2160 min Summer	4.666	1276	2880 min Summer	3.771	1648	4320 min Summer	2.695	2384	5760 min Summer	2.124	3048
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Unit 24b Romsey Industrial Estate Greatbridge Road Romsey SO51 0HR			Elgar Road Reading Surface Water Attenuation					
Date Novembert 2025 File SURFACE WATER ATT...			Designed By KHN Checked By					
Micro Drainage			Source Control W.12.4					
Summary of Results for 100 year Return Period (+45%)								
Storm Event		Max Level (m)	Max Depth (m)	Max Infiltration (1/s)	Max Control (1/s)	Max Outflow (1/s)	Max Volume (m³)	Status
7200 min Summer		38.959	0.089	0.0	1.8	1.8	7.7	O K
8640 min Summer		38.939	0.069	0.0	1.6	1.6	6.0	O K
10080 min Summer		38.927	0.057	0.0	1.4	1.4	4.9	O K
15 min Winter		39.376	0.506	0.0	2.5	2.5	43.8	O K
30 min Winter		39.462	0.592	0.0	2.6	2.6	51.2	O K
60 min Winter		39.545	0.675	0.0	2.8	2.8	58.4	O K
120 min Winter		39.610	0.740	0.0	3.0	3.0	64.0	O K
180 min Winter		39.626	0.756	0.0	3.0	3.0	65.4	O K
240 min Winter		39.624	0.754	0.0	3.0	3.0	65.2	O K
360 min Winter		39.614	0.744	0.0	3.0	3.0	64.3	O K
480 min Winter		39.592	0.722	0.0	2.9	2.9	62.4	O K
600 min Winter		39.565	0.695	0.0	2.9	2.9	60.1	O K
720 min Winter		39.536	0.666	0.0	2.8	2.8	57.6	O K
960 min Winter		39.479	0.609	0.0	2.7	2.7	52.6	O K
1440 min Winter		39.374	0.504	0.0	2.5	2.5	43.6	O K
2160 min Winter		39.243	0.373	0.0	2.2	2.2	32.2	O K
2880 min Winter		39.128	0.258	0.0	1.9	1.9	22.3	O K
		Storm Event		Rain (mm/hr)	Time-Peak (mins)			
		7200 min Summer		1.766	3680			
		8640 min Summer		1.518	4408			
		10080 min Summer		1.336	5136			
		15 min Winter		182.617	22			
		30 min Winter		109.552	36			
		60 min Winter		65.720	64			
		120 min Winter		39.426	122			
		180 min Winter		29.239	176			
		240 min Winter		23.652	204			
		360 min Winter		17.541	278			
		480 min Winter		14.189	356			
		600 min Winter		12.036	432			
		720 min Winter		10.523	506			
		960 min Winter		8.504	650			
		1440 min Winter		6.299	930			
		2160 min Winter		4.666	1344			
		2880 min Winter		3.771	1732			
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Unit 24b Romsey Industrial Estate Greatbridge Road Romsey SO51 0HR	Elgar Road Reading Surface Water Attenuation	
Date Novembert 2025 File SURFACE WATER ATT...	Designed By KHN Checked By	
Micro Drainage	Source Control W.12.4	

Rainfall Details

Rainfall Model	FEH	F (1km)	2.420
Return Period (years)	100	Summer Storms	Yes
Site Location	GB 471550 172100	Winter Storms	Yes
C (1km)	-0.027	Cv (Summer)	1.000
D1 (1km)	0.387	Cv (Winter)	1.000
D2 (1km)	0.384	Shortest Storm (mins)	15
D3 (1km)	0.296	Longest Storm (mins)	10080
E (1km)	0.303	Climate Change %	+45

Time / Area Diagram

Total Area (ha) 0.100

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.000	4-8	0.100

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Storage is Online Cover Level (m) 39.670																																																																										
<u>Cellular Storage Structure</u>																																																																										
Invert Level (m) 38.870 Safety Factor 2.0																																																																										
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95																																																																										
Infiltration Coefficient Side (m/hr) 0.00000																																																																										
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<u>Hydro-Brake® Outflow Control</u>																																																																										
Design Head (m) 0.790 Hydro-Brake® Type Md5 SW Only Invert Level (m) 38.850																																																																										
Design Flow (l/s) 3.0 Diameter (mm) 75																																																																										
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