

FLOOD RISK TECHNICAL NOTE

LAND OFF CLIFTON ROAD, DEDDINGTON, BANBURY

On behalf of Blue Cedar Homes

Date: 27th January 2023 | Pegasus Ref: P19-1601 – Author: Maja Raicevic





Document Management.

Version	Date	Author	Checked/ Approved by:	Reason revision	for
Revision A	27/01/2023	Maja Raicevic	Luke Johnson	First Issue	



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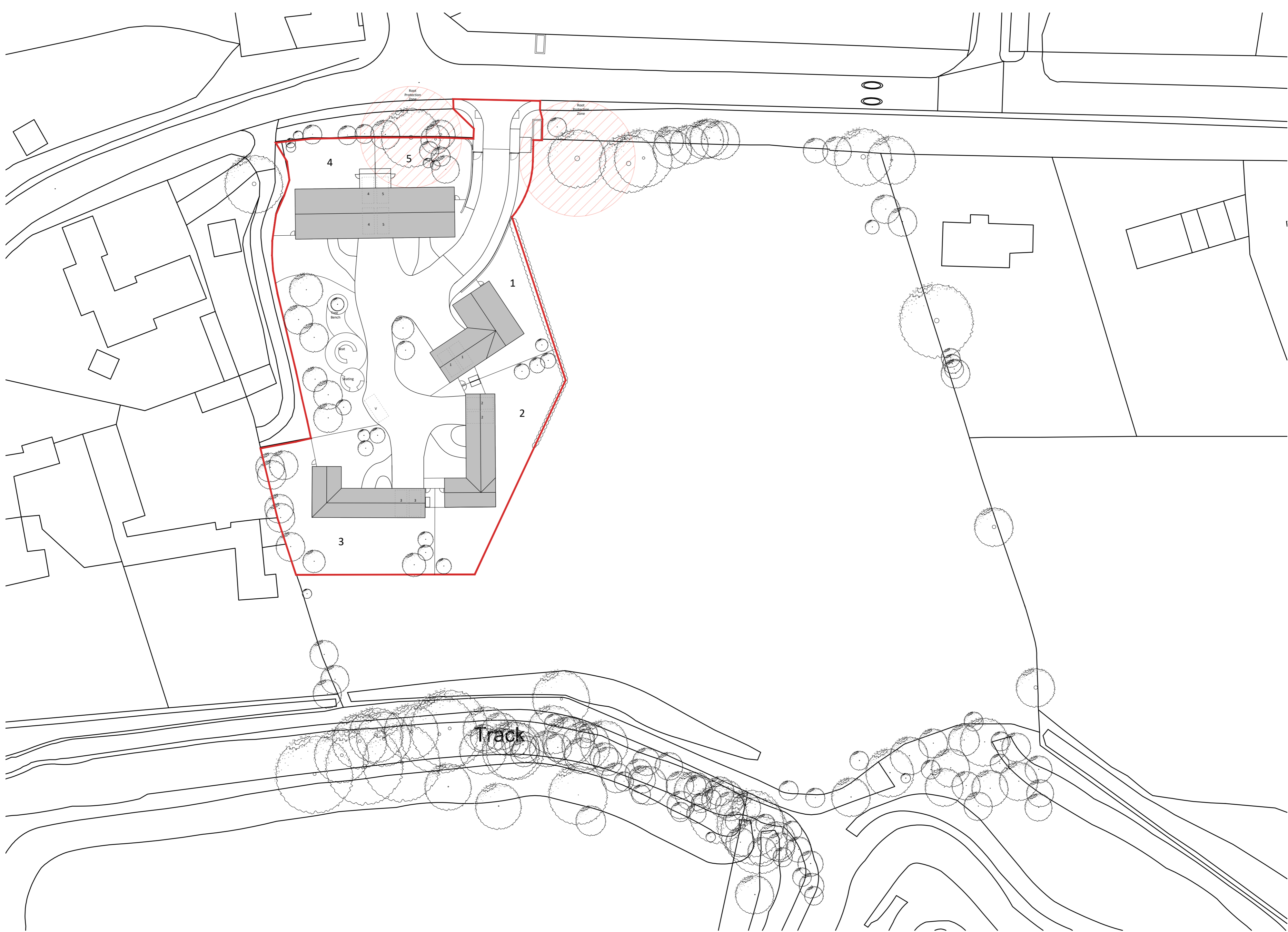


1. Proposed Drainage Statement

- 1.1. This Technical Note (TN) has been prepared by Pegasus Group Ltd on behalf of Blue Cedar Homes in order to consider changes to the residential development, land south of Clifton Road, Deddington.
- 1.2. The previous scheme which had a total number of 7 residential units has now been downsized to a number of 5 dwelling single storey scheme. The site area is approximately 1.66 Ha in size and currently comprise of a greenfield area. A copy of the Site Layout can be found in **Appendix A**.
- 1.3. Approximate site co-ordinates are E: 447401; N: 231891, with nearest post code OX15 OTP.
- 1.4. The Environment Agency online flood map indicates the site to lie within Flood Zone 1 (<1:1000 year probability of flooding occurring). As well as being a very low risk from surface water and risk of reservoir flooding.
- 1.5. In the previous scheme, a geo-cellular crate soakaway has been utilized as the main source of surface water disposal and attenuation. An infiltration rate of 0.4282 m/hr has been used to infiltrate through the base and sides of the soakaway. The total impermeable area for this site was 0.211 ha.
- 1.6. Changes made to the site layout reduced the total impermeable area which is now 0.197 ha. Soakaway crates remain the main source of surface water disposal and attenuation with dimensions of (10x6x1.5m) using an infiltration rate of 0.4282 m/hr.
- 1.7. MicroDrainage calculations using the Source Control module have been undertaken to confirm no flooding occurs for the proposed development for the worst case storm event of 1:100 year plus 40% allowance for climate change, a copy of the results can be found in **Appendix B**.
- 1.8. Water quality improvements will be maintained through the use of permeable surfacing as well as a gravel / fine stone surround to the soakaway.
- 1.9. It can be considered that the changes to the site layout have no impact on flood risk both within the development as well as to surrounding sites.



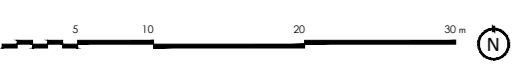
Appendix A – Proposed Site Layout



Land South of Clifton Road
Deddington
Site Plan

Rev	Date	Details	Rev	Status
Project	Stage	Drawing	T	PLANNING
4192	3	110	T	PLANNING

Scale	Size	Drawn	Check	Creation
1:500	A2 L	IB	MB	





Appendix B – MicroDrainage Source Control Calculations

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

Half Drain Time : 120 minutes.


Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	98.829	0.829	5.1	47.3	O K
30 min Summer	99.036	1.036	5.5	59.1	O K
60 min Summer	99.180	1.180	5.8	67.3	O K
120 min Summer	99.206	1.206	5.9	68.8	O K
180 min Summer	99.170	1.170	5.8	66.7	O K
240 min Summer	99.121	1.121	5.7	63.9	O K
360 min Summer	99.028	1.028	5.5	58.6	O K
480 min Summer	98.945	0.945	5.4	53.9	O K
600 min Summer	98.867	0.867	5.2	49.4	O K
720 min Summer	98.795	0.795	5.1	45.3	O K
960 min Summer	98.663	0.663	4.8	37.8	O K
1440 min Summer	98.451	0.451	4.4	25.7	O K
2160 min Summer	98.234	0.234	4.0	13.3	O K
2880 min Summer	98.105	0.105	3.8	6.0	O K
4320 min Summer	98.043	0.043	3.1	2.4	O K
5760 min Summer	98.034	0.034	2.5	1.9	O K
7200 min Summer	98.028	0.028	2.1	1.6	O K
8640 min Summer	98.024	0.024	1.8	1.4	O K
10080 min Summer	98.022	0.022	1.6	1.2	O K
15 min Winter	98.936	0.936	5.4	53.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	139.231	0.0	18
30 min Summer	91.066	0.0	32
60 min Summer	56.713	0.0	62
120 min Summer	34.120	0.0	102
180 min Summer	25.012	0.0	134
240 min Summer	19.949	0.0	168
360 min Summer	14.458	0.0	236
480 min Summer	11.506	0.0	306
600 min Summer	9.631	0.0	374
720 min Summer	8.325	0.0	440
960 min Summer	6.610	0.0	568
1440 min Summer	4.768	0.0	820
2160 min Summer	3.433	0.0	1168
2880 min Summer	2.717	0.0	1500
4320 min Summer	1.952	0.0	2200
5760 min Summer	1.542	0.0	2912
7200 min Summer	1.284	0.0	3576
8640 min Summer	1.105	0.0	4272
10080 min Summer	0.973	0.0	5016
15 min Winter	139.231	0.0	18

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
30 min Winter	99.176	1.176	5.8	67.1	O K
60 min Winter	99.354	1.354	6.1	77.2	O K
120 min Winter	99.402	1.402	6.2	79.9	O K
180 min Winter	99.357	1.357	6.2	77.3	O K
240 min Winter	99.293	1.293	6.0	73.7	O K
360 min Winter	99.159	1.159	5.8	66.1	O K
480 min Winter	99.037	1.037	5.5	59.1	O K
600 min Winter	98.922	0.922	5.3	52.6	O K
720 min Winter	98.816	0.816	5.1	46.5	O K
960 min Winter	98.630	0.630	4.8	35.9	O K
1440 min Winter	98.343	0.343	4.2	19.6	O K
2160 min Winter	98.084	0.084	3.7	4.8	O K
2880 min Winter	98.043	0.043	3.2	2.5	O K
4320 min Winter	98.031	0.031	2.3	1.8	O K
5760 min Winter	98.025	0.025	1.8	1.4	O K
7200 min Winter	98.021	0.021	1.5	1.2	O K
8640 min Winter	98.018	0.018	1.3	1.0	O K
10080 min Winter	98.016	0.016	1.2	0.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
30 min Winter	91.066	0.0	32
60 min Winter	56.713	0.0	60
120 min Winter	34.120	0.0	114
180 min Winter	25.012	0.0	142
240 min Winter	19.949	0.0	180
360 min Winter	14.458	0.0	256
480 min Winter	11.506	0.0	330
600 min Winter	9.631	0.0	400
720 min Winter	8.325	0.0	470
960 min Winter	6.610	0.0	604
1440 min Winter	4.768	0.0	852
2160 min Winter	3.433	0.0	1168
2880 min Winter	2.717	0.0	1468
4320 min Winter	1.952	0.0	2200
5760 min Winter	1.542	0.0	2904
7200 min Winter	1.284	0.0	3632
8640 min Winter	1.105	0.0	4376
10080 min Winter	0.973	0.0	5008

Pegasus Group		Page 3
Unit 5, The Priory London Road Sutton Coldfield B75 5SH		
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Innovyze	Source Control 2020.1.3	

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)	20.000	Shortest Storm (mins)	15
Ratio R	0.409	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.197

Time (mins)		Area
From:	To:	(ha)
0	4	0.197

Unit 5, The Priory
 London Road
 Sutton Coldfield B75 5SH



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 Checked by

Innovyze Source Control 2020.1.3

Model Details

Storage is Online Cover Level (m) 100.000

Cellular Storage Structure

Invert Level (m) 98.000 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.42840 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.42840

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	60.0	60.0	1.600	0.0	108.0
1.500	60.0	108.0			

BRISTOL

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