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Great crested newt Environmental DNA Survey

Land East of Walnut Tree Road, Pirton
Hertfordshire

Site	Land East of Walnut Tree Road, Pirton, Hertfordshire
Project number	163024
Client name / Address	Ollie Doyle, Land & Development, Blakeney Estates Ltd Unit 4, Water End Barns, Eversholt, Bedfordshire, MK17 9EA

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Declaration of compliance

The information which we have provided is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.



MKA Ecology Ltd is a CIEEM Registered Practice. This means that MKA Ecology Ltd are formally recognised for high professional standards, working at the forefront of our profession.

Validity of data

Unless stated otherwise the information provided within this report is valid for a maximum period of 24 months (two great crested newt breeding seasons) from the date of survey. If works at the site have not progressed by this time an updated site visit may be required in order to determine any changes in site composition and ecological constraints.

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1. EXECUTIVE SUMMARY

In April 2025 MKA Ecology Ltd was commissioned to undertake an Environmental DNA (eDNA) survey at all accessible waterbodies within 500m of Land East of Walnut Tree Road, Pirton, Hertfordshire in order to establish the presence/absence of great crested newt. The survey visit was undertaken on 7 May 2025.

Land East of Walnut Tree Road, Pirton is located in the village of Pirton approximately 2km north-west of the town of Hitchin. A Preliminary Ecological Appraisal of the Site was undertaken by MKA Ecology Ltd on 17 September 2024 (MKA Ecology Ltd, 2025), finding suitable terrestrial habitats on-site for great crested newt including hedgerows, rubble piles, and long grassland. There is no suitable aquatic habitat on-site, however, four ponds were identified within 500m of the Site, the Site is within an Amber risk zone, and a desktop study returned over 20 records of great crested newt within 2km of the Site. The proposed development involves the construction of up to 50 residential units, with associated access roads and landscaping. The removal of existing habitats will be required to facilitate the development.

eDNA surveys were undertaken on the ponds on 7 May 2025, along with a Habitat Suitability Index (HSI) assessment for each pond. During the Site visit, three of these ponds were able to be assessed, and an additional fifth pond not previously identified was also assessed, making a total of four ponds surveyed. The HSI scores are the following: Pond 1 and 3 scored below average, pond 5 scored poor, and pond 2 scored good. Two of the four ponds returned positive eDNA results (ponds 3 and 5), indicating that great crested newts are present in these ponds at the time of the survey. The pond unable to be surveyed (pond 4) is located over 250m from the Site boundary but is well connected to and in close proximity to pond 3, of which returned a positive great crested newt result. Therefore, there is a high risk that great crested newts are present within pond 4.

Ponds on-site have good connectivity with strong networks of linear hedgerows and lines of trees across the landscape, as well as connectivity to ponds beyond the Site boundary in which great crested newts have confirmed presence (from data search records). As a result of this, it is deemed there is a high risk of great crested newts being present at Land East of Walnut Tree Road, Pirton, Hertfordshire. Clearance of the habitats on-site as a result of the proposed development is likely to result in disturbance, killing, or injuring great crested newts, and therefore a District Level Licence must be acquired through Natural England with a conservation payment used to create compensatory habitat off-site.

Provided the works proceed under a District Level Licence, the development provides an opportunity to enhance the area for the local great crested newt population. To this end, the provision of log piles and a hibernaculum within the site design have been recommended.

2. INTRODUCTION

2.1. Aims and scope of the eDNA great crested newt survey

In April 2025 MKA Ecology Ltd was commissioned to undertake an Environmental DNA (eDNA) survey by Blakeney Estates Ltd at all accessible and suitable waterbodies within 500m of the proposed development Site in order to support a planning application for the development of up to 50 residential dwellings.

The aims of the eDNA great crested newt surveys were to:

- Establish the presence or likely absence of great crested newt within the vicinity of the proposed development site;
- Determine the need for future survey efforts;
- Establish the need for a great crested newt European Protected Species Licence for the works; and
- Detail the likely recommendations for mitigation where required.

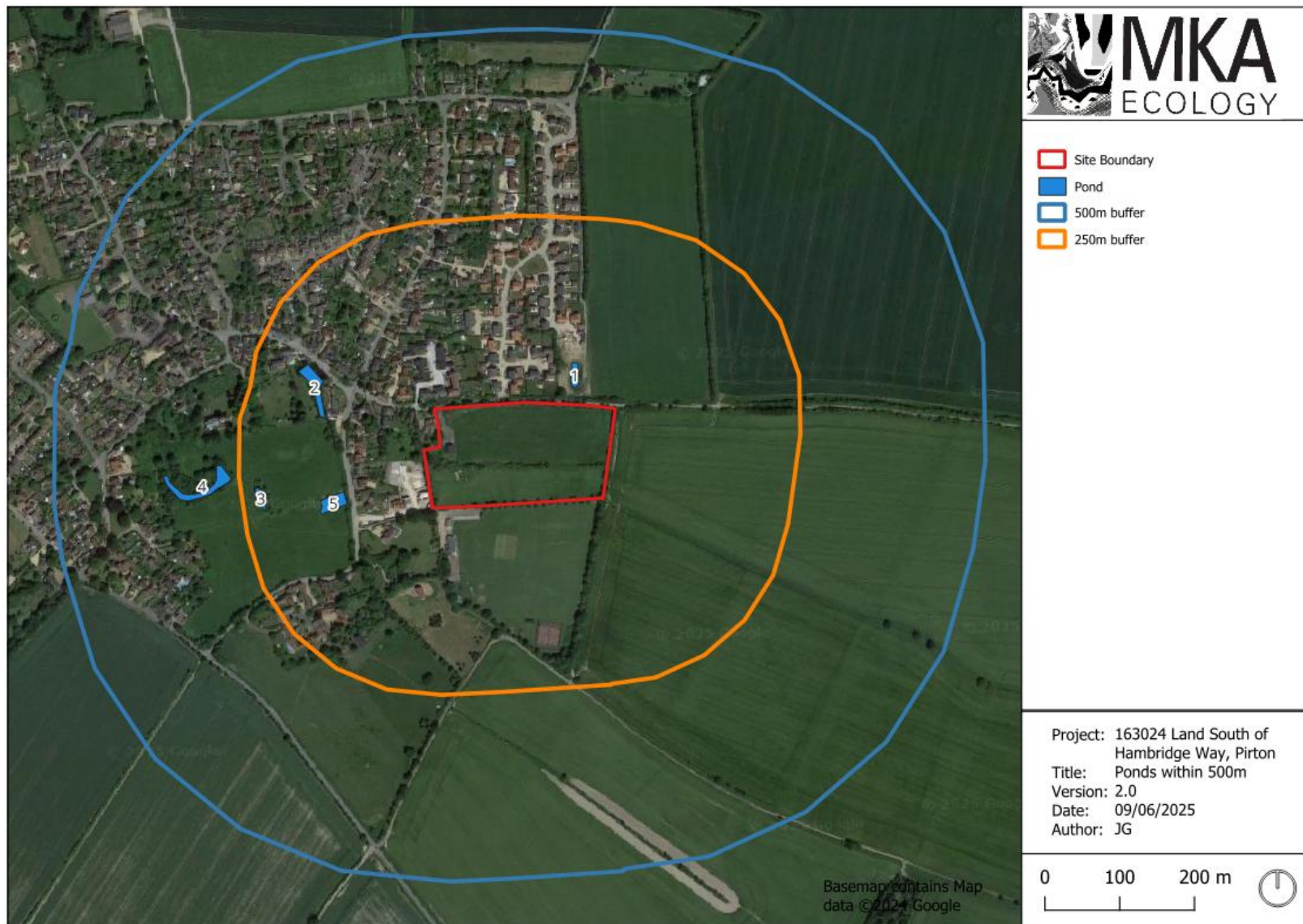
2.2. Site description and summary of previous survey effort

The survey area is shown on the map in Figure 1. Within this report this area is referred to as the Site or Land East of Walnut Tree Road, Pirton, Hertfordshire. The Site is located in the village of Pirton, Hertfordshire (centred on grid reference: TL 15110 31550) and measures approximately 3.11ha.

A Preliminary Ecological Appraisal (PEA) was undertaken in 17 September 2024 (MKA Ecology Ltd, 2025), finding the Site to contain suitable terrestrial habitat for great crested newts in the form of tall sward grassland for foraging, dense hedgerows for commuting to adjacent sites, and rubble piles as hibernacula. The data search returned 20 records of great crested newts within 2km of the Site and the Site is situated within an Amber risk zone.

Four ponds were identified within 500m of the Site boundary during the PEA, none of which were located on-site, although one pond is located 25m north. 500m is generally considered to be the maximum range that great crested newts travel from their ponds to find terrestrial habitat. Furthermore, there is suitable terrestrial habitat on site, including the areas of rubble and vegetation which could be used by great crested newts to hibernate during the winter or for resting places throughout the year. It is possible that any great crested newts present in ponds within 500m of the red line boundary may be using the terrestrial habitats present on the Site.

Figure 1: Ponds within 250m and 500m of Land East of Walnut Tree Road, Pirton, Hertfordshire



2.3. Proposed development

The proposed development involves the construction of up to 50 residential units with associated access roads and landscaping.

2.4. Legislation and planning policy

The great crested newt population across Europe has suffered major declines within the last century, in large part due to the destruction and fragmentation of suitable habitats and the propagation of intensive agriculture during this time. As a result of these large-scale population declines, great crested newts now receive legal protection through both European and domestic legislation.

Great crested newts are listed on Annexes II and IV of the EC Habitats Directive and Appendix II of the Bern Convention. They are protected under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended) and Schedule 5 of The Wildlife and Countryside Act 1981 (as amended). Further minor amendments to the species protection measures are also provided under the Countryside and Rights of Way Act, 2000. Great crested newts are a Species of Principal Importance as listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, which places a legal responsibility on decision makers (including local authorities in their consideration of planning applications) to maintain and where possible enhance their conservation status.

In summary, it is against the law to:

- Intentionally or recklessly capture or kill, or intentionally injure great crested newt;
- Deliberately disturb great crested newt or intentionally or recklessly disturb them in a place used for shelter or protection;
- Damage or destroy a breeding site or resting place;
- Intentionally or recklessly damage, destroy or obstruct access to a place used for shelter or protection;
- Possess a great crested newt, or any part of it, unless acquired lawfully; and
- Sell, barter, exchange or transport or offer for sale great crested newt or parts of them.

Disturbance of this species includes any activity that is likely to impair their ability to survive, breed, reproduce, or to rear or nurture their young, or in the case of animals of a hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong. Links for the full legislation text can be found in Appendix 1.

Actions may be permitted with exception to the law provided that works are carried out under a specific licence obtained from Natural England. Licence applications are subject to certain criteria, including the

provision of adequate precautions and mitigation to safeguard the viability of the local great crested newt population in the vicinity of the proposed development site.

In addition to obligations under wildlife legislation, the revised National Planning Policy Framework (NPPF) updated in 2025 requires planning decisions to act towards conserving and enhancing the local environment. Further details are provided in Appendix 1.

3. METHODOLOGIES

3.1. Habitat Suitability Index (HSI) assessment

All accessible ponds located within a 500-metre radius of the Site boundary were assessed for their suitability to support great crested newt using the Habitat Suitability Index (HSI) (Oldham *et al.*, 2000).

This methodology requires the surveyor to record specific habitat factors for each pond which are then combined to assess whether the pond would be likely to support great crested newt based upon their habitat preferences. The habitat Suitability Indices (SI) recorded are as follows:

- SI₁ Geographic location;
- SI₂ Pond area;
- SI₃ Pond permanence;
- SI₄ Water quality;
- SI₅ Pond shading;
- SI₆ Presence of water fowl;
- SI₇ Presence of fish;
- SI₈ Pond density within 1km;
- SI₉ Terrestrial habitat quality; and
- SI₁₀ Macrophyte cover.

The HSI score is obtained by combining the scores of the above parameters, and produces a numerical index between 0 and 1 (where 0 indicates poor habitat and 1 represents optimal habitat for great crested newt; see Table 1 below).

Table 1: HSI score and corresponding pond suitability for great crested newt

HSI Score	Pond Suitability
< 0.5	Poor
0.5 – 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
> 0.8	Excellent

It should be noted that this index is only a guide to the likely presence or absence of great crested newt and should be interpreted with in conjunction with background information on known populations in the area and knowledge of great crested newt ecology.

3.2. eDNA surveys

The eDNA survey was carried out by a licensed surveyor (or an individual authorised by the licensed surveyor) using the standard methodology and recommendations outlined under the Great Crested Newt Mitigation Guidelines (English Nature, 2001).

Great crested newts are variably found in both terrestrial and aquatic habitats throughout the year, however reliable surveys for the species can only be conducted during spring and early summer when the species congregates in suitable water bodies to breed. Great crested newts are known to form metapopulations across wide areas and may travel considerable distances overland between favoured breeding sites. It is therefore necessary to survey all suitable water bodies, wherever possible, within 500m of a proposed development.

The eDNA survey was carried out between mid-April to late-June, as per best practice guidelines.

The following process was applied at each waterbody:

- Water samples were collected from standing at the pond bank/edge, without entering the water. Sterile gloves are worn at all times. This is to ensure no historical DNA is disturbed when sampling and reduces the risk of cross contamination from another pond.
- 30ml of pond water from 20 locations around the pond margin was collected using a sterile ladle.
- The maximum amount of visible sample was collected through taking the sample as deep as possible, without disturbing the pond floor.
- Samples taken were pooled into Whirl-Pak bags, made watertight and gently shaken to ensure the sample was homogenised.
- 15ml of the collected sample was transferred into six ethanol filled tubes.

All samples are sent to SureScreen Scientifics to undergo analysis. The laboratory testing adheres to strict guidelines laid down in WC1067 Analytical and Methodological Development for Improved Surveillance of The Great crested newt, Version 1.1 (Biggs *et al.*, 2014).

3.3. Surveyor(s), author and reviewer

The survey was undertaken, and report written, by Joe Gillis, Ecologist at MKA Ecology Limited. Joe has over one years' experience as an ecological consultant and holds a Natural England great crested newt: survey or research level 1 licence (CL08). The report has been reviewed by Felix Bird, Senior Ecologist at MKA Ecology Ltd. Felix has over six years' experience as an ecological consultant.

3.4. Date, time and weather conditions

Table 2 provides details of the date, time and prevailing weather conditions recorded during the site visit for the survey.

Table 2: Date, time and weather conditions of survey visit

Date	Weather conditions*
07/05/2025	Temperature: 14°C Cloud: 2 Wind: 2 Rain: none

*Wind as per Beaufort Scale / Cloud cover given in Oktas.

3.5. Equipment

Equipment used to undertake eDNA sampling is provided below:

- Sample tubes with preservative (confirm number of tubes used)
- 2x Pair sterile gloves
- Sampling ladle (30ml)
- Transfer pipette (15ml)
- Self-supporting bag (1L)

3.6. Constraints

It was not possible to gain access to pond 4 to collect water samples or conduct a HSI due to fencing, steep banks, and dense vegetation preventing access for the surveyors. Furthermore, an additional fifth pond within 500 metres of the Site not previously identified during the desktop study was also surveyed (labelled as pond 5 within this report). Therefore, one of the four ponds within 500m of the Site boundary was not tested for great crested newt eDNA. Pond 4 is located over 250m away from the development Site, however, there are no significant barriers between pond 4 and ponds 3 and 5, nor are there significant barriers between these ponds and the Site. Nevertheless, due to the close proximity of ponds 3 and 4 (less than 30m at their respective closest points), and similar HSI results, this is not considered a constraint as pond 4 and 3 are highly likely to have the same result, and it will be assumed that the result of pond 3 will also apply to pond 4.

4. RESULTS

4.1. Habitat Suitability Index (HSI) assessment

The results of the HSI assessment carried out on 7 May 2025 are included in Appendix 2.

Pond 2 was assessed to be of good suitability to support GCN, and scored highly on factors including water quality, pond area, and shade. Ponds 1 and 3 were found to be of below average suitability to support GCN, with factors such as a lack of macrophyte cover, poor water quality, and high levels of shading reducing the HSI score, although terrestrial habitat availability scored moderately. Pond 5 was assessed as being particularly poor due to extremely poor water quality influence from water fowl observed, limited size, and lack of terrestrial habitat.

The HSI results, pond photographs, descriptions and corresponding pond suitability are given in Table 3 below. For the HSI calculations please see Appendix 2.

Table 3: Results of HSI assessments at ponds within 500m of Land East of Walnut Tree Road, Pirton, Hertfordshire

Pond	Distance and direction from the Site	General description	Connectivity and surrounding habitat quality	HSI Score
1	23m north	This pond appeared to be a compensation pond created as part of a housing development. While some remnants of water remained at the pond bed, due to the high percentage of macrophytes and trees allowed to grow within the pond, the water level had been lowered dramatically, and it is therefore suspected that during periods of sustained drought the pond dries.	Pond 1 is within close proximity to the Site with no barriers to dispersal for great crested newts between the pond and the Site as there is only a narrow pedestrian footpath composed of grassland between the Site and pond. There is suitable hibernacula surrounding the pond in the form of log piles, as well as grassland for foraging. However, this pond is isolated in relation to other pond within the are and is situated within a residential area.	Below average
2 	136m west	A large pond approximately 900m ² in size historically utilised for cattle and sheep for hundreds of years. The pond underwent restoration in 1992 to enhance the ponds value to nature, dredging the pond of silt accumulation and introducing reed beds. The pond health is continuously monitored by the	There is little terrestrial value for great crested newt within the ponds immediate vicinity. The pond is connected to the pasture field containing ponds 3,4, and 5 and temporary ponds via grassland and lines of trees in which a mosaic of habitats is available. The pond and the Site is separated by a road and small residential area, however, this is not expected to be a	Good

Pond	Distance and direction from the Site	General description	Connectivity and surrounding habitat quality	HSI Score
		local Parish Council. While the pond is in good condition, due to the artificial nature of the pond, there are not many easily accessible areas for great crested newts to enter and exit.	significant barrier to great crested newts as the village has a low population and the road does receives a low volume of traffic. Furthermore, there is sufficient hedgerow connectivity for commuting as well as several gardens to act as stepping stones.	
3	220m west	A small pond at the centre of the pasture field. There are several algal blooms within the pond as a result of eutrophication from run-off as cattle are kept within the field. The pond is heavily shaded by the surrounding trees.	The pond is situated at the centre of the pasture field and is amongst a series of temporary and permanent ponds and surrounded by a mosaic of habitats that support great crested newts in their terrestrial phase. Connectivity to the Site is as stated in pond 2.	Below average
4	260m west	A large approximately 1,000m ² pond with steep banks and significant shade from the dense woodland and scrub growing surrounding the water body around its entire perimeter.	The pond is connected to the Site via lines of trees and extensive grassland. There is foraging opportunities within the mosaic of dense scrub, rough grassland, and woodland areas surrounding the pond. There is also a series of temporary and permanent ponds within the grassland field east of the pond. Connectivity to the Site is as stated for pond 2.	N/A - No HSI score due to access restrictions

Pond	Distance and direction from the Site	General description	Connectivity and surrounding habitat quality	HSI Score
				
5 	115m west	A fairly large pond approximately 700m ² in size situated at the eastern boundary of the pasture field with sloping banks and little shade. The pond appears to be well-used by cattle due to its open accessibility and is highly turbid.	The immediate terrestrial habitat surrounding the pond is very limited and there are not many opportunities for egg laying. However, as stated above, it is situated within a large pasture field containing a mosaic of habitats suitable for foraging and hibernating, as well as additional aquatic habitat in the temporary and permanent ponds within close proximity throughout the field. Connectivity to the Site is as stated in pond 2.	Poor

4.2. eDNA survey results

The results of the great crested newt eDNA surveys at Land East of Walnut Tree Road, Pirton, Hertfordshire are summarised in Table 4 below. The eDNA report issued by SureScreen Scientifics is attached in Appendix 3.

Pond 3 and 5 returned a positive eDNA result for GCN, indicating that GCN are present. Ponds 1 and 2 returned a negative test result for GCN, indicating the likely absence of breeding GCN within these waterbodies.

Table 4: Results of the eDNA survey for ponds within 500m of Land East of Walnut Tree Road, Pirton, Hertfordshire

Pond reference	Inhibition check*	Sample integrity**	Result / Score
Pond 1	Pass	Pass	Negative 0/12
Pond 2	Pass	Pass	Negative 0/12
Pond 3	Pass	Pass	Positive 2/12
Pond 4	No access during eDNA sampling.		
Pond 5	Pass	Pass	Positive 3/12

*Inhibition check refers to a laboratory evaluation of the sample tested by adding a known amount of an artificial gene to the sample and running the qPCR analysis in duplicate. Variation in the point at which qPCR amplification starts indicates inhibition, which requires the sample to be diluted and retested.

**Sample integrity refers to quality of packaging, absence of tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to results errors. PCR inhibitors can cause false results. Every effort is made to clean the sample pre-analysis however some inhibitors cannot be extracted. An unacceptable inhibition check will cause an indeterminate sample and must be sampled again. In that case the result will be reported as inconclusive.

5. EVALUATION AND RECOMMENDATIONS

The following evaluations and recommendations are based upon the results of the eDNA survey undertaken at ponds within 500m of Land East of Walnut Tree Road, Pirton on 7 May 2025.

Two of the four ponds returned a positive eDNA result for great crested newts (GCN), indicating that the presence of great crested newt at ponds 3 and 5 at the time of sampling or in the recent past is **confirmed**.

Ponds 1 and 2 returned negative results from the eDNA samples. These results mean that great crested newt DNA was not detected or is below the threshold detection level for these ponds and the test result should be considered as no evidence of great crested newt presence. For pond 1, this could be due to the relatively isolated position of the pond in relation to the other ponds in the wider landscape, as well as the exceptionally high macrophyte and vegetation cover of the pond reducing the water levels and free movement within the pond itself. Pond 2 is thought to have returned negative result due to the lack of terrestrial habitat surrounding the pond and poor accessibility into and out of the pond due to the artificial walls at the pond's perimeter.

Due to the close proximity of ponds containing great crested newt to the development footprint there is a considered to be a significant risk of encountering the species during the proposed works. The rough grassland, as well as rubble piles, are to be removed as a result of the development, and a significant amount of suitable foraging habitat will therefore no longer exist within the area to facilitate the proposed residential units.

5.1. Recommendations

Following the completion of the eDNA surveys at Land East of Walnut Tree Road, Pirton, Hertfordshire, it is recommended that a great crested newt District Level Licence (DLL) is acquired through Natural England by submitting an Impact Assessment and Conservation Payment Certificate (IACPC) to detail what compensation is required as a result of the development. As surveys have been undertaken of each pond, compensation multipliers are applied to each pond individually depending on great crested newt presence or absence. All of the ponds lie outside the red line boundary but within 250m – these are considered to be proportionally impacted and the associated compensation is proportional to the impact. Each pond has a 250m buffer applied around it and any overlap with the red line boundary is considered lost. If a pond is occupied, a 4x multiplier is applied, meaning an additional four ponds must be created each pond that GCN are present. If a pond is not occupied, then it is a 1x multiplier. Ponds that were not surveyed due to access restrictions have a precautionary multiplier applied of 2x.

Recommendation 1

A District Level Licence for great crested newts should be acquired from Natural England by submitting an Impact Assessment and Conservation Payment Certificate in order to apply appropriate compensation measures to the development. Works cannot commence until this licence is acquired.

In addition, enhancement of suitable habitats for great crested newts should be considered in the development proposals. Examples of provisions could include creating suitable terrestrial habitats or simple enhancements such as provision of log piles or a hibernaculum which would also provide suitable habitat for a broader range of species.

Recommendation 2

Consider enhancing the habitats present on site for great crested newts and amphibians post-development.

6. CONCLUSIONS

Five waterbodies were identified within 500m of the Site. Suitable terrestrial habitat for great crested newt is found within the vegetation onsite, most notably the hedgerows, rubble piles, and long grassland. No aquatic habitat is present within the red line boundary but nor are there significant barriers to newt movement between the surrounding ponds and the Site.

Four of the five ponds were assessed, however it was not possible to survey pond 4 due to access constraints. The results of the eDNA survey confirmed the presence of great crested newt in two of the ponds (pond 3 and 5).

As a result, there is a risk the proposed development would lead to the killing or injury of great crested newts, as well as removal of their habitat. To avoid the risk of causing an offense, it is recommended a Natural England District Level License is applied for. By joining the scheme, no further survey effort or mitigation works will be required.

The district license will ensure the development does not negatively impact the local population of great crested newt, however in order to deliver positive benefits for the species it is recommended simple enhancements, such as log piles or a hibernaculum are included within the site design.

7. REFERENCES

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8. APPENDICIES

Appendix 1: Legislation and planning policy

Conservation of Habitats and Species Regulations 2010 (as amended)

Full legislation text available at: <http://www.legislation.gov.uk/uksi/2010/490/regulation/61/made>

The Wildlife and Countryside Act 1981 (as amended)

Full legislation text available at: <http://www.legislation.gov.uk/ukpga/1981/69>

Section 41 of Natural Environments and Rural Communities (NERC) Act 2006

Full legislation text available at: <http://www.legislation.gov.uk/ukpga/2006/16/contents>

National Planning Policy Framework (NPPF)

Full text is available at: <https://www.gov.uk/government/collections/revised-national-planning-policy-framework>

The revised NPPF was updated on 7 February 2025 setting out the Government's planning policies for England and the process by which these should be applied. The policies within the NPPF are a material consideration in the planning process. The key principle of the NPPF is a presumption in favour of sustainable development, with sustainable development defined as a balance between economic, social and environmental needs.

Policies 187 to 201 of the NPPF address conserving and enhancing the natural environment, stating that the planning system should:

- Contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes;
- Recognise the wider benefits of ecosystem services; and
- Minimise impacts on biodiversity and provide net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity.

Furthermore, there is a focus on re-use of existing brownfield sites or sites of low environmental value as a priority, and discouraging development in National Parks, Sites of Specific Scientific Interest, the Broads or Areas of Outstanding Natural Beauty other than in exceptional circumstances.

Where possible, planning policies should also

“promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity”.

Appendix 2: Habitat Suitability Index (HSI) calculations

Table 5: HSI calculations for all ponds within 500m of Land East of Walnut Tree Road, Pirton, Hertfordshire

Habitat Suitability	Pond suitability index				
	Pond 1	Pond 2	Pond 3	Pond 4	Pond 5
Geographic location Optimal = 1, unsuitable = 0.01	1	1	1	No pond present / unable to survey pond at this location	1
Pond area Calculated using graph	0.5	0.95	0.4		0.5
Pond permanence Never dries = 0.9, dries annually = 0.1	0.5	0.9	0.9		0.9
Water quality Good = 1, bad = 0.01	0.33	1	0.33		0.01
Pond shading Calculated using graph	1	0.9	0.3		1
Presence of water fowl	0.01	0.67	0.67		0.67

Absent = 1, major presence = 0.01					
Presence of fish Absent = 1, major presence = 0.01	1	1	0.67		1
Pond density within 1km Calculated using graph	1	1	1		1
Terrestrial habitat quality Good = 1, none = 0.01	0.67	0.33	0.33		0.33
Macrophyte cover Calculated using graph	0.08	0.35	0.3		0.4
HSI value for site	0.56	0.72	0.55	N/A	0.3

Appendix 3: SureScreen Scientifics Environmental DNA Report

Attached as separate document.



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