eDNA Report 2025

Land south of Smugglers Lane, Barns Green

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CONTENTS

1.0 INTRODUCTION

Background

1.1 The Ecology Partnership was commissioned by Miller Homes to undertake environmental DNA (eDNA) surveys of the ponds within 250m of the land south of Smugglers Lane, Barns Green, RH13 0PS, hereafter referred to as the 'site' (Figure 1).

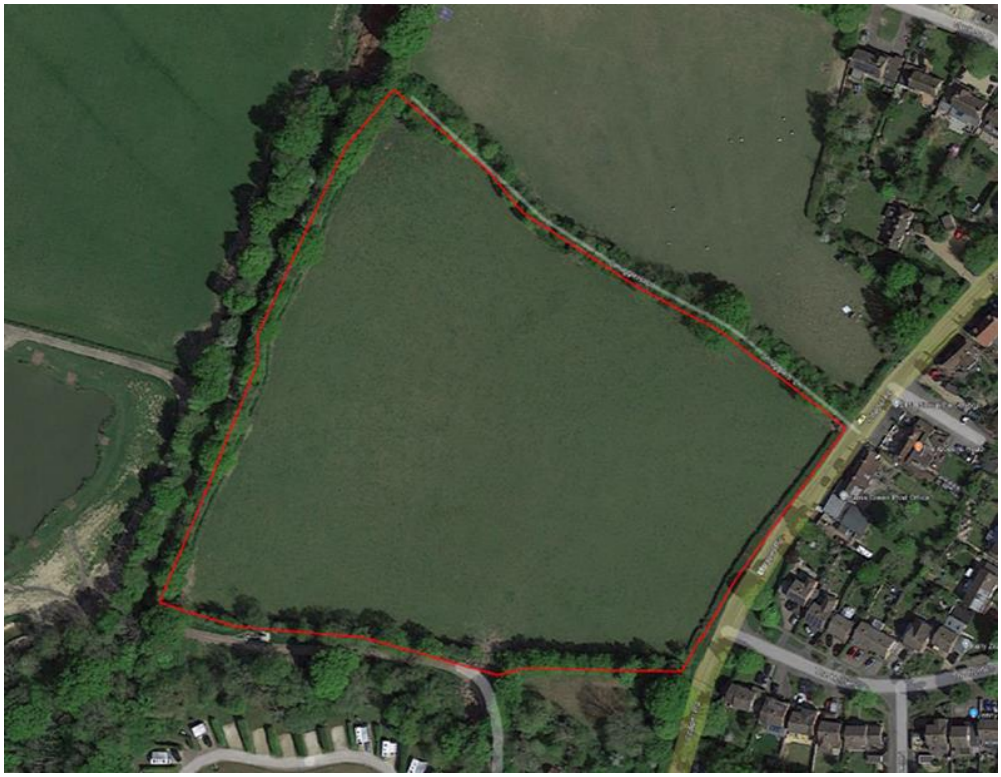

Figure 1: Approximate location of the site, indicated by the red-line boundary.

Site Context

1.2 The site comprises one field of modified grassland bordered by hedgerows on each aspect. Ancient and deciduous woodlands are adjacent to the south western boundary, with a large fishing pond to the west. The site is approximately 3.2ha and located southwest of the town of Barns Green in Horsham, at a central grid reference TQ1246727020. In the wider area supports a fishery and campsite to the south and west, residential development to the east and blocks of woodland connected by arable land and hedgerows.

Description of Proposed Development

1.3 The proposals are for a residential development with associated access road and garden space. Amenity areas include a play area and open space supporting a SuDS basin. Additional tree planting will be present across the site. A 20m vegetated buffer is to be maintained along the boundary of the adjacent ancient woodland to the west of the site.

2.0 METHODOLOGY

2.1 No ponds were identified on site, however, there were two ponds identified within 250m of the site boundary. Other waterbodies were also located within 250m of the site however, these lakes and ponds associated with a fishery and were considered unsuitable to support GCN.

2.2 Both ponds (P1 & P2) were on other landowner's land. All landowners were contacted to request permission for eDNA surveys to occur on their respective ponds. Permission was granted for P1, allowing surveys to be undertaken. No response regarding P2 was received, and permission was therefore not granted so no surveys were conducted on this pond.

2.3 Ponds 1 was subject to a Habitat Suitability Index (HSI) and an environmental DNA (eDNA) survey on 27th May 2025 to determine if great crested newts *Triturus cristatus* have been within the ponds this year. The eDNA survey involved a collection of 20 samples of water from around the perimeter of the pond. All water samples were analysed by SureScreen Scientifics in accordance with the protocol set out in Appendix 5 of Biggs et al. (2014).

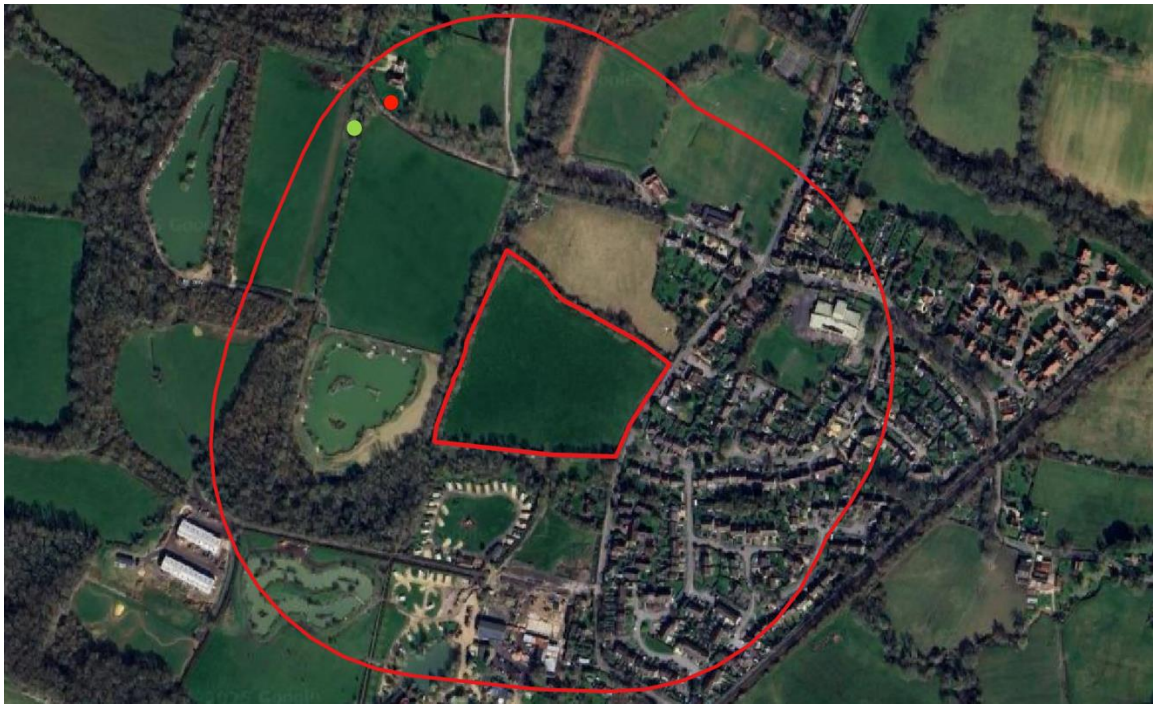

Figure 2: Ponds within 250m of site. Red dot indicate no surveys being undertaken, green dot indicate HSI and eDNA surveys undertaken.

3.0 RESULTS

HSI Result

3.1 Pond 1 was assessed for its potential to support GCN using the HSI method. The suitability index is calculated for each of the ten categories. These are then analysed using the equation below to obtain the geometric mean or HSI score of the nine suitability indices.

$$HSI = (SI_1 \times SI_2 \times SI_3 \times SI_4 \times SI_5 \times SI_6 \times SI_7 \times SI_8 \times SI_9 \times SI_{10})^{1/10}$$

3.2 The calculated score should be between 0 and 1 and will fall within one of several bands, which correspond to a given category for the pond. Table 3 below shows the HSI scores, and their corresponding pond suitability category and Table 4 below show the Habitat Suitability Index score for the assessed pond onsite.

Table 3: HSI scores and pond suitability

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

Table 4: HSI score for the assessed onsite pond

ARGUK GCN HSI Calculator		
SI No	SI Description	SI Value
1	Geographic location	1
2	Pond area	0.4
3	Pond permanence	0.9
4	Water quality	0.67
5	Shade	1
6	Water fowl effect	1
7	Fish presence	1
8	Pond Density	1
9	Terrestrial habitat	1
10	Macrophyte cover	1
HSI Score		**0.87**
Pond suitability		**Excellent**

3.3 As shown in Table 2, P1 scored a **'excellent'** suitability for GCN. As such, if GCN are in the immediate area, they would likely be present within this pond.

eDNA Survey

3.4 The results of the eDNA survey returned negative for great crested newt eDNA within P1 (See Appendix 1).

3.5 Due to the negative eDNA surveys results, it is confirmed that GCN are likely absent from P1, despite it being of 'excellent' suitability. As other ponds in the local area were unsuitable to support GCN owing to presence of fish, it is considered highly unlikely that GCN would be present within the application site in their terrestrial phase if, absent from the excellent suitability pond 1 in their aquatic phase.

3.6 As a precaution, it is recommended that reasonable avoidance measures to avoid impacts on GCN are taken when clearing areas of grassland onsite. No further surveys or licencing are deemed necessary. If a GCN is recorded during any site works in, all works will stop and Natural England / NatureSpace consulted on how to proceed. Precautionary mitigation for GCN is as follows:

- Grassland within the development area should be kept in an unsuitable state, preferably grazed or alternatively maintained and mown short, up until development occurs. If this is not undertaken and the site becomes suitable terrestrial habitat for GCN then a sensitive two stage clearance of the grassland will be required; and
- The site should also be kept clear of any features that may provide refuge for amphibians such as rubble, log or brash piles.
- Prior to any clearance on site, a toolbox talk should be provided to be given to all workers on site about the legality regarding GCN, their habitat requirements, basic identifying features and what to do if they are found.
- All clearance works should begin at the eastern end of site and work towards the western end, where there is either retained habitat or suitable off-site habitat for potential GCN to disperse into.

3.7 During development work construction materials, as well as skips and pallets, should be stored on hardstanding where possible and furthermore, should be elevated off the ground. This is so that no features are created that GCN could potentially use as refuge habitat.

3.8 Where trenches and holes are dug, these should not be left open overnight. GCN (and other amphibians, reptiles and small mammals) may get trapped in vertical-sided trenches. Therefore, where there is a risk of this occurring, the holes should be refilled,

or planks of wood should be placed so that any trapped animals may use these to escape.

3.9 If a great crested newt is identified on site during works, then the following procedure must be followed;

- If a great crested newt is discovered at the site all works must cease immediately and Natural England and/or a great crested newt licenced ecologist must be contacted immediately to provide further advice.
- A licence might be required before works can recommence. If so, procedures will be followed to obtain a Natural England European Protected Species Mitigation Licence (EPSML) or the district level licence for the works.

3.10 It is considered that if these methods are used on site then it is considered that no individual GCN would be harmed as a result of the proposals.

4.0 Conclusions

4.1 Pond 1 located 215m from the red line boundary, tested negative for GCN eDNA. Pond 1 was considered of 'excellent' suitability for GCN. There were no ponds on site and the majority of the terrestrial habitat onsite was dominated by short-sward grazed grassland. Furthermore, remaining waterbodies in the local area supported fish and were therefore also unlikely to support GCN. As such, it is considered that GCN are likely absent from site and no further survey is required.

4.2 As a precaution, Reasonable Avoidance Measures, as laid out in this report are recommended. Should these measures be followed, it is considered that the favourable conservation status of the species will be upheld during development.

5.0 REFERENCES

ARG., (2010) *UK Advice Note 5: Great crested newt habitat suitability index.* Amphibian and Reptile Groups of the United Kingdom.

Cresswell, W and Whitworth, R (2004) An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt Triturus cristatus. Peterborough, UK.

Franklin, P.S (1993) *The migratory ecology and terrestrial habitat preferences of the great crested newt (Triturus cristatus) at Little Wittenham Nature Reserve*. De Montford University unpublished thesis.

Jehle, R (2000) *The terrestrial summer habitat of radio-tracked great crested newts (Triturus cristatus) and marbled newts (T. marmoratus)*. Herpetological Journal, 10, pp. 137-142.

Langton, T.E.S., Beckett, C.L. & Foster, J.P. (2001)., *Great Crested Newt Handbook.* Froglife, Halesworth.

Oldham, R.S. & Nicholson, M (1986) *Status and ecology of the warty newt Triturus cristatus*. Report to the Nature Conservancy Council (Contract HF 3/05/123), Peterborough.

Internet resources:

Google Maps: www.google.co.uk/maps

Magic Interactive Map: www.magic.gov.uk

Appendix 1: eDNA Results

Folio No:	1919-2025
Purchase Order:	SUR6924
Contact:	The Ecology Partnership
Issue Date:	12.06.2025
Received Date:	29.05.2025

SureScreen Scientifics

GCN eDNA Analysis

Summary

When great crested newts (GCN), *Triturus cristatus* , inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analyzing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

Results

Lab ID	Site Name	OS Reference	Degradation Check	Inhibition Check	Result	Positive Replicates
R25 0198	Barns Green - P1	TQ 12222 27340	Pass	Pass	Negative	0/12

Matters affecting result: none

Reported by: Amy Bermudez

Approved by: Consuela Sopronyi

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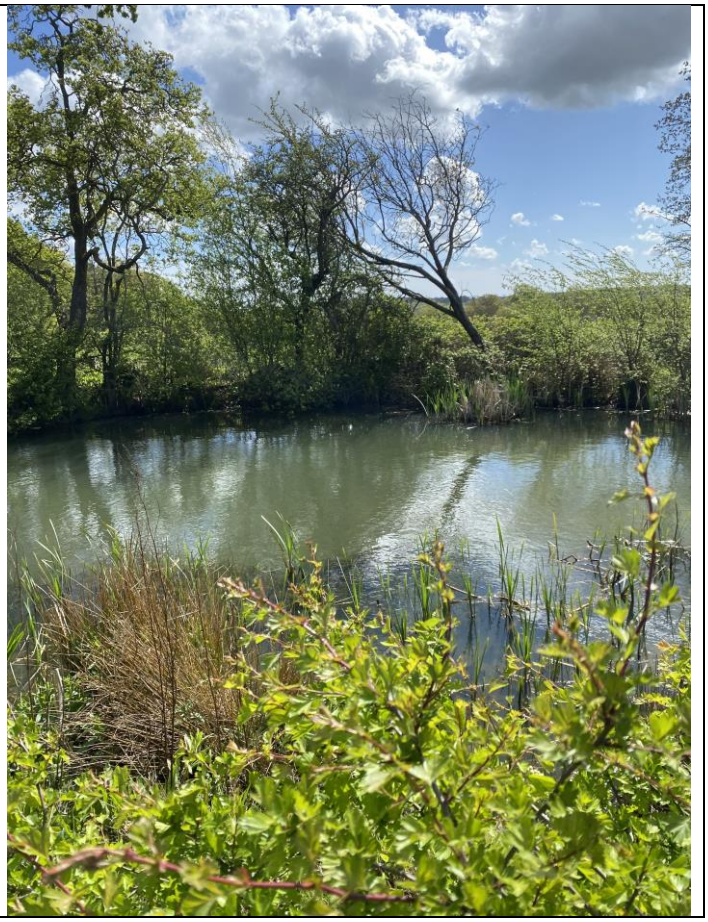
Appendix 2: Photos

Photograph 1: Pond 1	

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