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***Hillside, Moor Lane, Wiswell***

***Further Bat Dusk Survey***

***30th August 2022***

## INTRODUCTION

Following an initial Ecology Scoping Survey undertaken on the 25th March 2022, Kingdom Ecology have completed further bat dusk emergence surveys of the house and great crested newt presence/absence surveys of two garden ponds located at Hillside, Moor Lane, Wiswell, Ribble Valley, BB7 9DG (National Grid Reference SD 74647 37205). The additional bat dusk surveys were undertaken on the 15th June and 9th August 2022. The great crested newt survey comprised of an eDNA survey of the two ponds and was completed on the 15th June 2022. Proposals are to demolish the existing house and to redevelop the site.

Surveys were led by Richard Roe (BSc, MSc, MIEEM, CEnv). Richard has extensive experience of undertaking bat surveys as a professional ecological consultant with over twenty years' experience. Richard is also a licensed bat worker (Level 4 Class License) and great crested newt worker (Level 2 Class Licence).

The study site comprises detached house and garage located on Moor Lane, Wiswell. The site layout is shown on Figure 1 in the Appendix. The house is considered likely to be of approximately 1930s origin. The house is currently occupied.

The gardens support lawned areas, patio, flower beds and are scattered with ornamental shrubbery. There are two small garden ponds located at the site.

The house is located within managed gardens on the edge of the village of Wiswell. Moor Lane runs along the eastern boundary of the site and is marked by a hawthorn hedge with holly. An agricultural pasture field is located to the west of the gardens.

## GREAT CRESTED NEWT SURVEY

There are two small garden ponds located at the site. Pond 1 is set within a stone, patio area. The pond measures less than 10 m² in area. The pond is heavily shaded and is overgrown with Canadian pondweed. Frogspawn was observed within the pond in March 2022.

Pond 2 is located on the top garden terrace, this pond is also contained within a patio area. The pond measures approximately 10 m² in area and supports Canadian pondweed, marsh marigold and yellow iris with a covering of duckweed. Frogspawn was also observed to be present within this pond.

Great crested newt presence/absence surveys of the Ponds were undertaken using eDNA sampling techniques. These followed the Field Water Sample Protocol given in of Natural England's Technical Advice Note WC1067.

There were not considered to be any significant constraints to the eDNA survey with the perimeter of the ponds found to be accessible allowing even spacing of samples. Samples were collected on the 15th June 2022.

Pond samples were posted to Surescreen Scientifics within 48 hours of collection to allow analysis. Samples were appropriately stored prior to postage to avoid any degradation of eDNA.

Surescreen carry out additional checks to ensure the validity of the sample results by checking the integrity of the sample packaging, checking whether there has been any degradation and a check of PCR inhibitors prior to sampling. All of the samples passed all of the quality checks.

The eDNA survey returned a negative result for great crested newt for both ponds (results in Appendix). It is therefore considered to be very unlikely that any great crested newt would be present within the proposed development site.

## BAT SCOPING SURVEY FINDINGS

The main house comprises of a detached building arranged over 1.5 floors with a pitched roof clad in ceramic rosemary tiles and the house has been rendered in white pebble dashing.

Internally, the house has a small loft space which is approximately 90 cm tall. The loft space is lined with fibrous insulation felt which extends to the eaves of the roof whilst the internal face of the roof is lined with bitumastic hessian felt. Small numbers of moderately old brown long-eared bat droppings (approximately 20 droppings) were found scattered beneath the ridge beam of the loft space (Target Note 1 on Figure 1). The ridge beam was also observed to be bare of cobwebs above the bat droppings. No fresh bat droppings were found within the loft space.

Some limited potential bat roosting habitat was identified at each face of the house. The verge mortar at the gables appears intact and well-sealed, however there are occasional narrow gaps present between the overlapping rosemary tiles at each gable face. These features offer potential roosting habitat for individual or low numbers of bats.

The dormer window, at the building's east face, also offers potential bat roosting habitat between overlapping tiles running along the pitched dormer roof.

Otherwise, the main roof and ridge tiles are mostly intact and tightly fitted. There is a single raised ridge tile which corresponds with the location of the old bat droppings within the loft space (Target Note 1). The external render extends up to the base of eaves and so there are no gaps or crevices here.

Based upon the external inspection alone, the house is considered to offer a 'moderate' bat roosting potential.

The garage was assessed as offering a 'negligible' bat roosting potential.

## BAT DUSK ACTIVITY SURVEY

### *Methods*

A further two bat emergence surveys of the house were undertaken on the 15th June and the 9th August 2022.

Given the size of the building and site layout, it was considered appropriate to use three surveyors to allow full coverage of all potential bat roosting features identified at the site. This comprised of one surveyor positioned at the north, east and west faces of the house (surveyor locations shown on Figure 1 in the Appendix).

The surveyors were equipped with heterodyne and time expansion bat detectors (Anabat Walkabout, Echometer Touch 2 and Elekon Bat Scanner).

The dusk survey commenced 15 minutes before sunrise and continued up to 90 minutes after sunset. All bat species and bat behaviour were recorded.

### *Results*

The first survey was undertaken under suitable conditions on the 15th June 2022 with weather recorded as dry, clear, calm and with a temperature of 15°C. Sunset was recorded at 21:43.

In summary, survey recorded moderate levels of activity comprising of occasional noctule passes over the site, and intermittent common and soprano pipistrelle foraging activity. One soprano pipistrelle was identified roosting at the site, emerging from a gap between tiles at the west facing gable at 21.57 (Target Note 2 on Figure 1) . The first pipistrelle activity was recorded at 21.45 with a common pipistrelle pass at the front of the house.

Second survey was undertaken under suitable conditions on the 9th August 2022 with weather recorded as dry, clear, calm and with a temperature of 20°C. Sunset was recorded at 21:52.

In summary, survey again recorded moderate levels of activity comprising of intermittent spells of common and soprano pipistrelle foraging activity plus occasional noctule and myotis passes over the site.

One soprano pipistrelle and one common pipistrelle bat were identified emerging from the west facing gable. The common pipistrelle emerged at 21.21 from a crevice between the gable tiles (Target Note 3) and the soprano pipistrelle at 21.28 from a further crevice between gable tiles (Target Note 2). The first bat activity was recorded at 21.06 with a common pipistrelle pass at the front of the house.

No other bat species or other significant bat activity was recorded.

## BAT RECOMMENDATIONS

### *Overview*

The further bat emergence surveys have confirmed the presence of individual roosting common pipistrelle and soprano pipistrelle between tiling at the west facing gable of the house and have also identified the loft space as having been used by roosting brown long-eared bats in the relatively recent past (Roost locations at Target Notes 1-3 on Figure 1).

The roosts are considered to represent day roosts used by low numbers of non-breeding bats of a common species. Such roosts are considered to be of 'low' conservation value.

It is considered very unlikely that the site supports a significant roost such as a maternity colony.

Works will result in the loss of these roost sites. Bats are protected under UK law and are considered to be a European Protected Species. Therefore, works to redevelop the site would need to be undertaken under a European Protected Species License (EPSL).

Given the low conservation value of the identified roosts, it would be appropriate to complete the works under a Bat Mitigation Class License (BMCL).

### *Bat License and Mitigation*

An outline mitigation strategy has been designed to limit the negative impacts of the development on bats in the locality. The mitigation strategy would provide alternative high-quality bat roosting habitat and would also aim to limit the risk of harm to individual animals during the development process. It is considered that this strategy will ensure that the favourable conservation status of brown long-eared, soprano pipistrelle and common pipistrelle bat is maintained both locally and nationally.

Works should follow a strict method statement whereby sensitive stages of the development such as the dismantling of key areas of the roof would be undertaken by hand and would be overseen by the licensed ecologist.

Prior to the start of works a mitigation area should be prepared which would act as a receptor for bats encountered during works.

The receptor area should comprise of 3 x Schwegler 2F bat boxes (or similar) which should be fitted to retained mature trees located along the western boundary of the site. The exact location of the bat boxes would be determined by the named ecologist on the license prior to the start of demolition works.

***Addendum***

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Prior to the start of works on site, a 'toolbox talk' should be given to the site contractors identifying the locations where bats have been encountered, their responsibilities under UK Legislation and the EPSL method statement; plus what they should do if any bats are encountered during works.

Any works to the roof gables or ridge would need to be undertaken under supervision of the named ecologist. These areas of roof would need to be disassembled by hand until the licensed bat worker is satisfied that all potential bat roosting habitat has been fully investigated. Any bats encountered during works would be moved to the pre-prepared bat boxes by the licensed bat worker.

If any bats are encountered at any other time during works, works should immediately stop and the named ecologist on the EPSL should be contacted to attend site and provide further advice.

In addition to the 3 x Schwegler 2F bat boxes, it is also recommended that a further 3 x integral bat boxes are built into the structure of the new house proposed at the site.

Bat boxes should be located at a minimum height of 4m and ideally be positioned close to a gable apex. A suitable model of integral bat box is the Habibat 003.

***Addendum***

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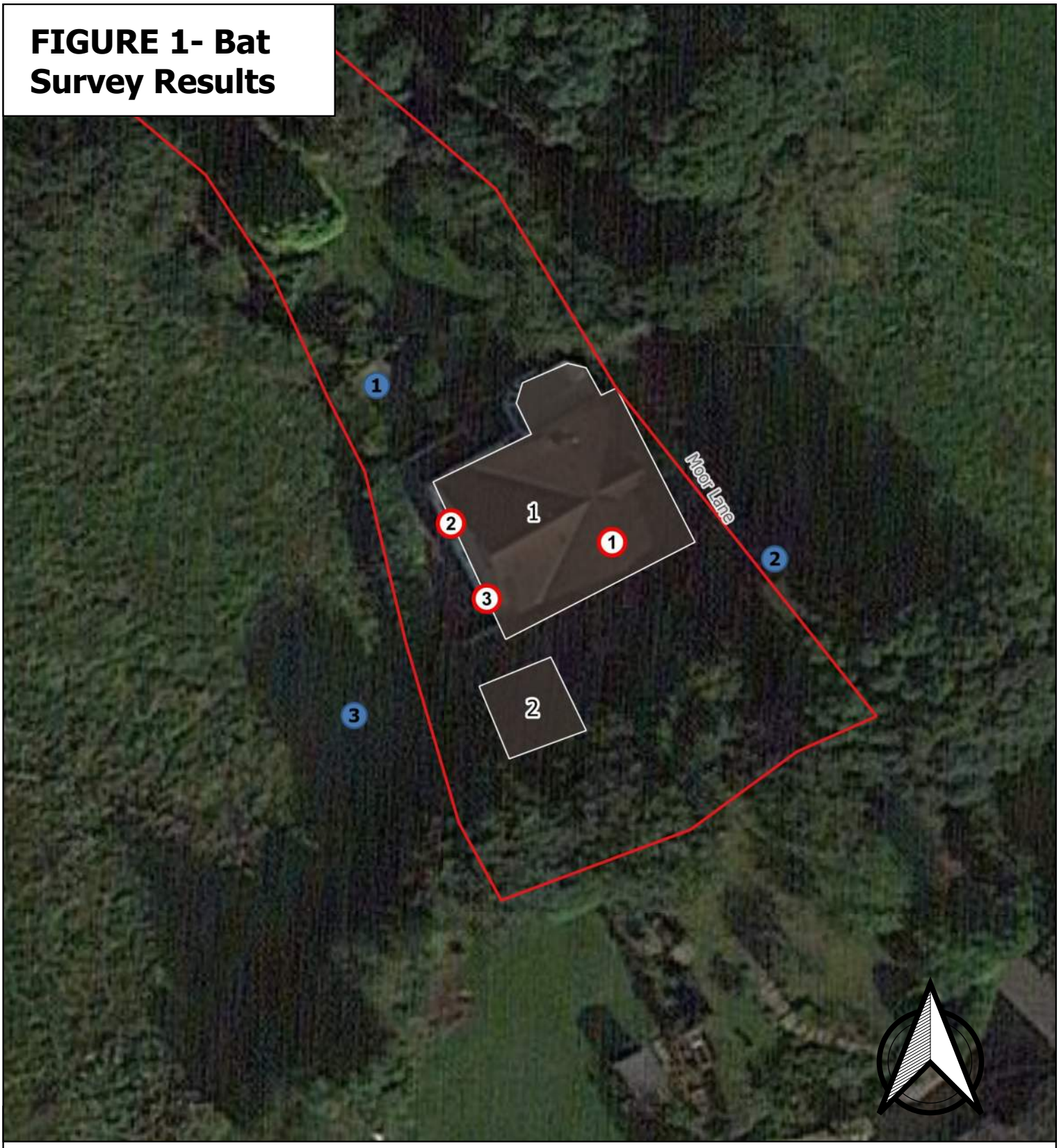
## *Appendix*

*Photograph 1- Roost at Target Notes 2 and 3*

*Photograph 2- Old brown long-eared bat droppings at Target Note 1*

# FIGURE 1- Bat Survey Results




## KEY

- Study Site
- Building
- Bat Surveyor Location
- Target Note

0 5 10 15 20 m

Map data ©2022 Google

SureScreen Scientifics

Folio No: E14245
Report No: 1
Purchase Order: KING
Client: KINGDOM ECOLOGY
Contact: Richard Roe

# TECHNICAL REPORT

## ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (TRITURUS CRISTATUS)

### 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 analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

### RESULTS

**Date sample received at Laboratory:** 17/06/2022
**Date Reported:** 28/06/2022
**Matters Affecting Results:** None

| Lab Sample No. | Site Name | O/S Reference | SIC | DC | IC | Result | Positive Replicates |
|---|---|---|---|---|---|---|---|
| 3416 | Wiswel1 | | Pass | Pass | Pass | Negative | 0 |
| 3418 | Wiswel2 | | Pass | Pass | Pass | Negative | 0 |

If you have any questions regarding results, please contact us: ForensicEcology@surescreen.com

**Reported by:** Chris Troth **Approved by:** Esther Strafford

## METHODOLOGY

The samples detailed above have been analysed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample which then undergoes DNA extraction. The extracted sample is then analysed using real time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. True positive controls, negative controls and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd is ISO9001 accredited and participate in Natural England's proficiency testing scheme for GCN eDNA testing. We also carry out regular inter-laboratory checks on accuracy of results as part of our quality control procedures.

## INTERPRETATION OF RESULTS

**SIC:** **Sample Integrity Check** [Pass/Fail]
When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.

**DC:** **Degradation Check** [Pass/Fail]
Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.

**IC:** **Inhibition Check** [Pass/Fail]
The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.

**Result:** **Presence of GCN eDNA** [Positive/Negative/Inconclusive]
**Positive:** GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.
**Positive Replicates:** Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.
**Negative:** GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.