


Emergence Survey Report – Bats GCN eDNA Survey Mammal Survey

Site Location	Chiltern View Barn, Water Lane, Ford, Aylesbury, HP17 8XD
Document reference	CE4092-02 <i>This document should be read in conjunction with the Preliminary Ecological Appraisal completed on the 8th December 2022, document reference: CE4092</i>
Date of survey	<u>Bats</u> Emergence Survey – 23 rd May 2023 (All Buildings) Emergence Survey – 8 th June 2023 (All Buildings) Emergence Survey – 1 st July 2023 (All Buildings) Emergence Survey – 26 th July 2023 (Building Two Only) <u>GCN eDNA</u> – 5 th June 2023 – Negative Result <u>Mammal Survey</u> – 23 rd May 2023 to 1 st July 2023
Report by	Garry Smith – Senior Ecologist Signature  Tel: 07792064673 Email: info@chaseecology.co.uk

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1.0 Introduction

Brief

This report will present the findings of phase-2 ecology surveys of the named site on the below dates;

Bats

Emergence Survey – 23rd May 2023 (All Buildings)

Emergence Survey – 8th June 2023 (All Buildings)

Emergence Survey – 1st July 2023 (All Buildings)

Emergence Survey – 26th July 2023 (Building Two Only)

GCN eDNA – 5th June 2023 – Negative Result

Mammal Survey – 23rd May 2023 to 1st July 2023

2.0 Executive Summary

Chase Ecology undertook an emergence survey at the named site to assess the building for bats following a preliminary roost assessment which deemed the structure to offer value for roosting.

<p>Survey Methodology</p>	<p><u>Bats</u> All emergence surveys were conducted during the optimal recommended survey times following best practice guidelines.</p> <p>All surveys were carried out during optimal weather conditions.</p> <p>Each elevation of the structure which offers value to bats was viewed during the survey visit with no limitations.</p> <p><u>Great Crested Newts</u> eDNA water survey was conducted using a test kit from Sure Screen along with conducting the survey during the recognised optimal time of the year.</p> <p><u>Mammal Survey</u> Trail cameras were installed around the site to visually capture any mammal activity within the site to assess for any likely impacts during the proposed development works.</p>
<p>Results of emergence surveys</p>	<p>Following the emergence survey of the structure, it has been identified that bats are using the building for daytime roosting and the following roosts were identified;</p> <p><u>Building One</u> Roost 2 – Common Pipistrelle (1 x max count) within West gable which will suffer total loss during development. Roost 3 – Common Pipistrelle (1 x max count) within lower West facing roof coverings which will suffer total loss during development.</p> <p><u>Building two</u> Roost 1 – Common Pipistrelle (1 x max count) within East gable which will suffer no disturbance under current development proposals. Roost 4 – Whiskered (13 x max count) within West facing gable.</p> <p>In addition to the above recorded bat roosts, several other bats were observed to be using the site for both feeding and commuting.</p> <p>See Section 5: Results of Phase 2 Activity Surveys</p>

Great Crested Newt	<p>eDNA survey of single water feature to the West of the site demonstrated a negative test result.</p> <p>See Appendix 3: Great Crested Newt eDNA test results</p>
Mammal Survey	<p>During the 23rd May 2023 to 1st July 2023, a total of three cameras were installed within the site. During this time, no significant UK protected species were observed.</p> <p>Appendix 4: Mammal Survey</p>
Requirements for Additional Survey	<p>No further survey requirements have been identified during the emergence surveys conducted to date.</p> <p>See Appendix 1: Mitigation, Protection & Enhancement.</p>
Predicted Impacts of Development on Bats	<p>Low impacts will be offered to bats if all guidance & recommendations within appendix one for mitigation, protection and enhancement are implemented during all stages of development (Building one only)</p> <p>See Appendix 1: Mitigation, Protection & Enhancement.</p>
Licensing Requirements for Bats	<p><u>Building One</u> A Protected species mitigation licence for bats will be required and sort prior to any disturbance to both bats and their roosts which have been identified and recorded within this report.</p> <p>The following bat roosts recorded will need to be mitigated under licence from Natural England;</p> <p><u>Building One</u> Roost 2 – Common Pipistrelle (1 x max count) within West gable which will suffer total loss during development. Roost 3 – Common Pipistrelle (1 x max count) within lower West facing roof coverings which will suffer total loss during development.</p> <p>See Appendix 1: Mitigation, Protection & Enhancement.</p> <p>See Appendix 2: Roost Creation/Net Gain</p> <p>No development works or maintenance works to building two will be carried out without prior assessment of any impacts which may offer disturbance to roost one or four. If disturbance to roost one or four is likely to take place, then further licenced mitigation would need to take place.</p>

Biodiversity Net Gain	See Appendix 2: Roost Creation/Net Gain
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3.0 Legislation

- 1.1.1** All British bats are classed as European Protected Species and therefore receive protection under the Conservation of Habitats and Species Regulations 2017, making it an offence to:
- Deliberately kill, injure or capture a bat;
 - Deliberately disturb bats;
 - Damage or destroy a breeding site or resting place
- 1.1.2** In addition, all British bats are also listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) which contains further provisions making it an offence to intentionally or recklessly Obstruct access to any structure or place which any bat uses for shelter or protection; or Disturb any bat while occupying a structure or place which it uses
- 1.1.3** If proposed development work is likely to destroy or disturb bats or their roosts, then a licence will need to be obtained from Natural England, which would be subject to appropriate measures to safeguard bats.
- 1.1.4** In the UK, the provisions of the Birds Directive are implemented through the Wildlife & Countryside Act 1981 (as amended), the Conservation of Habitats and Species Regulations 2010 (as amended). All wild birds, their nests and eggs are protected it an offence to: kill, injure, or take any wild bird; take, damage or destroy the nest of any such bird whilst it is in use or being built; or take or destroying an egg of any such wild bird.
- 1.1.5** Special protection against disturbance during the breeding season is also afforded to those species listed on Schedule 1 of the Act.

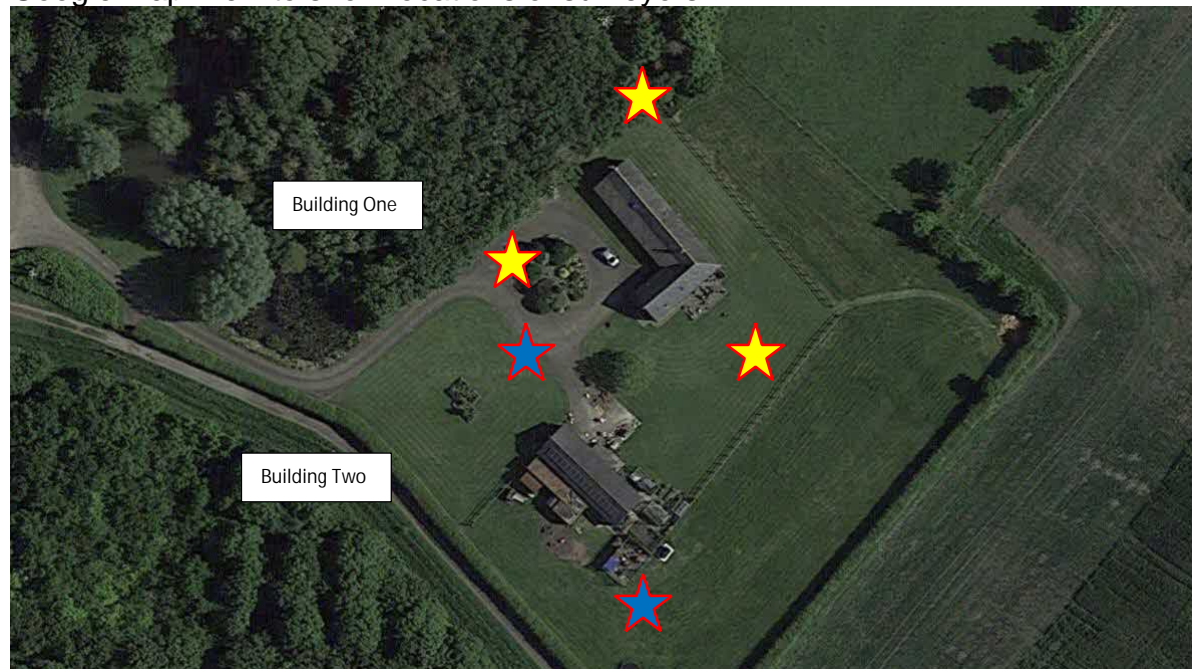
4.0 METHODOLOGY

- 4.1 All reporting undertaken by Mr Garry Smith who is an experienced licensed bat ecologist in England [Class 2 registration 2017-28032-CLS-CLS] with over 9 years' experience practical of professional ecological surveys.
- 4.2 It is recommended that emergence surveys should be carried out within the optimal survey season from May to August, April & September are also useful times if weather conditions remain optimal, in line with the Good Practice Guidelines, 3rd edition, Bat Conservation Trust
- 4.3 Surveys were conducted following "The Bat Workers Manual "(JNCC 2004), "The Bat Mitigation Guidelines" (EN 2004) and the Bat Conservation Trust 'Bat Surveys for Professional Ecologists: Good Practice Guidelines' (2016) recommendations.
- 4.4 All elevations of the structure were visible throughout the survey to capture any bats emerging from within or into the structure throughout the duration of the survey.

5.0 Results of Phase 2 emergence surveys – Bat

Date		23 rd May 2023				
Sunset/ Sunrise	Start Time	Finish Time	Temperature		Wind Beaufort Scale	Cloud Cover
			Start	End		
21:01	20:45	22:45	15	12	1	10%
		Name	Position		Detector	
Lead Surveyor		Garry Smith	Rear Right – B2		EMT 2 Pro	
Assistant Surveyor		Adam Parker	Rear Left – B1		EMT 2 Pro	
Assistant Surveyor		Megan Smith	Front Left – B1		EMT 2 Pro	
Assistant Surveyor		Rebecca Burt	Front Left – B2		EMT 2 Pro	
Assistant Surveyor		James McConnell	Right – B1		EMT 2 Pro	

Google Map View to show locations of surveyors.



Emergence/Re-Entry Data

Point	Time	Species	Activity
One	21:17	Common Pipistrelle	1 x emerged from South/East gable of building two.
Two	21:20	Common Pipistrelle	1 x emerged from North/West gable of building one
Three	21:23	Common Pipistrelle	1 x emerged from lower roof coverings of building one.

Activity from Bats during survey

Species	Activity	
Noctule	Early	2 x commuting pass, no visual
	Mid	-
	Late	-
Soprano Pipistrelle	Early	1 x commuting pass West to East across North areas of the site.
	Mid	-
	Late	1 x faint foraging during final stages of survey, no visual.
Common Pipistrelle	Early	1 x foraging across South areas of site for up to 10 minutes following emergence from point one. 4 x commuting pass South to North through site and over building one.
	Mid	1 x brief foraging along West boundary tree line. 2 x brief foraging across central areas of the site.
	Late	-
Brown Long-eared	Early	-
	Mid	1 x brief foraging from East to West through central areas of the site.
	Late	-

<p>Any other information including photographs of emergence points</p>	<p>Roost One – Emerged from between vertical claddings and fascia</p> 
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Roost 2 – Emerged from gap between the brickworks and soffit

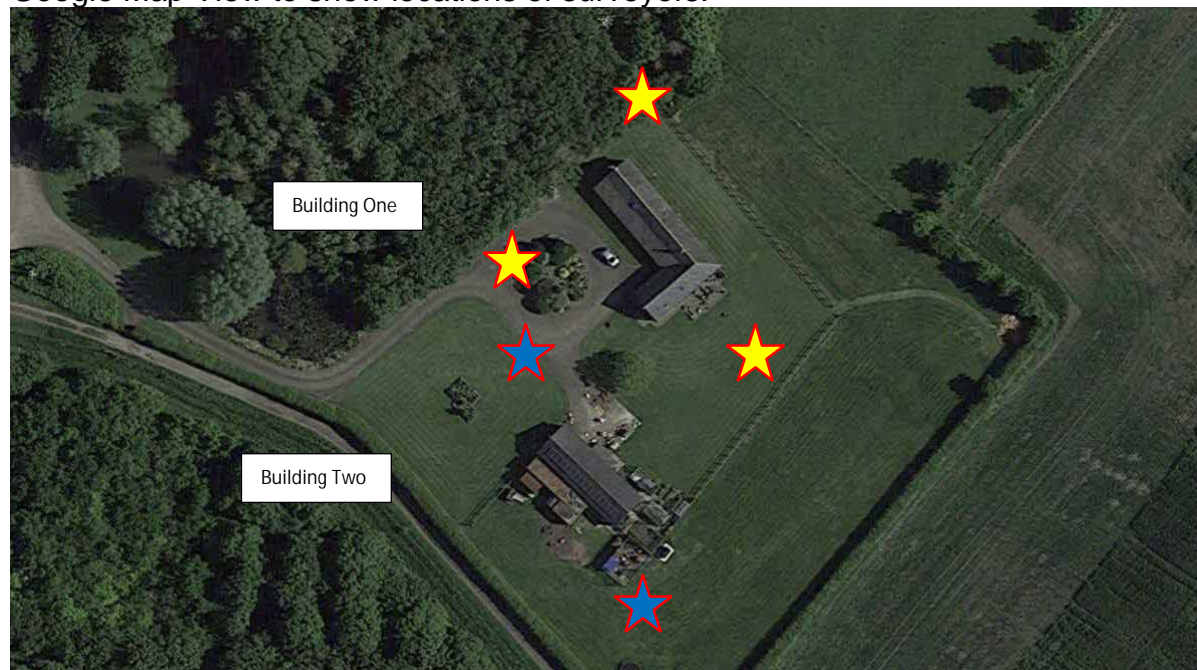


Roost 3 – Emerged from lower roof coverings between fascia and tiles



Date	8 th June 2023					
Sunset/ Sunrise	Start Time	Finish Time	Temperature		Wind Beaufort Scale	Cloud Cover
21:19	21:03	23:00	Start 17	End 14	2	0%
	Name	Position		Detector		
Lead Surveyor	Garry Smith	Rear Right – B2		EMT 2 Pro		
Assistant Surveyor	Adam Parker	Rear Left – B1		EMT 2 Pro		
Assistant Surveyor	Megan Smith	Front Left – B1		EMT 2 Pro		
Assistant Surveyor	Rebecca Burt	Front Left – B2		EMT 2 Pro		
Assistant Surveyor	James McConnell	Right – B1		EMT 2 Pro		

Google Map View to show locations of surveyors.



Emergence/Re-Entry Data

Point	Time	Species	Activity
One	21:27	Common Pipistrelle	1 x emerged from South/East gable of building two.

Activity from Bats during survey

Species	Activity
Common Pipistrelle	Early 1 x commuting pass, no visual. 2 x bats foraging along West boundary between tree line and building one for up to 20 minutes.
	Mid 1 x commuting pass South the North over building two. 1 x brief foraging across South areas of the site. 2 x commuting pass East to West across North areas of the site. 1 x commuting pass West to East across front of building one.
	Late 1 x brief foraging between buildings one & two.
Noctule	Early -
	Mid 1 x commuting pass, no visual.
	Late -
Soprano Pipistrelle	Early -
	Mid 1 x commuting pass South to North across East area of the site.
	Late 2 x brief intervals of foraging towards the end of the survey, no visual.
Whiskered	Early -
	Mid -
	Late 1 x commuting pass, no visual.

<p>Any other information including photographs of emergence points</p>	<p>Roost One – Emerged from between vertical claddings and fascia</p> 
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Date	1 st July 2023					
Sunset/ Sunrise	Start Time	Finish Time	Temperature		Wind Beaufort Scale	Cloud Cover
			Start	End		
04:48	03:10	05:03	16	15	1	25%
		Name	Position		Detector	
Lead Surveyor		Garry Smith	Rear Right – B2		EMT 2 Pro	
Assistant Surveyor		Annika Smith	Rear Left – B1		EMT 2 Pro	
Assistant Surveyor		Aiden Cowser	Front Left – B1		EMT 2 Pro	
Assistant Surveyor		Tony Teese	Front Left – B2		EMT 2 Pro	
Assistant Surveyor		Owen Smith	Right – B1		Walkabout	

Google Map View to show locations of surveyors.



Emergence/Re-Entry Data

Point	Time	Species	Activity
Four	05:01 to 05:16	Whiskered	13 bats emerged into gap between the vertical timbers and fascia of the West facing gable of building two.

Three	04:29	Common Pipistrelle	1 x emerged into lower roof coverings of building one.
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Activity from Bats during survey

Species	Activity	
Whiskered	Early	Up to 6 bats swarming around the West gable of building two on arrival to site. Up to 13 bats swarming around the West gable of building two.
	Mid	-
	Late	-
Common Pipistrelle	Early	-
	Mid	1 x commuting pass, no visual. 1 x brief foraging between buildings one & two prior to emerging into point three.
	Late	

<p>Any other information including photographs of emergence points</p>	<p>Roost 3 – Re-entry into lower roof coverings between fascia and tiles</p> 
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Roost Four – Re-entry into gap between the vertical timbers and fascia of the West facing gable of building two.



Date	26 th July 2023 – Building 2 only					
Sunset/ Sunrise	Start Time	Finish Time	Temperature		Wind Beaufort Scale	Cloud Cover
05:16	03:30	05:31	Start	End	2	10%
			14	14		
	Name	Position	Detector			
Lead Surveyor	Adam Parker	Rear Right – B2	EMT 2 Pro			
Assistant Surveyor	Aiden Cowser	Front Left – B2	EMT 2 Pro			

Google Map View to show locations of surveyors.



Emergence/Re-Entry Data

No roosting activity recorded for building two during the survey times noted.

Activity from Bats during survey

Species	Activity	
Soprano Pipistrelle	Early	-
	Mid	1 x foraging around the tree line close to the site entrance and B1 for up to 15 minutes. 1 x commuting pass West to East across rear of B2
	Late	-

6.0 Ecological Experience

Garry Smith - England [Class 2 registration 2017-28032-CLS-CLS]

On joining the ecological sector in 2008 he has developed practical experience of UK protected species from phase-1 habitat assessments through to phase-2 assessments and mitigation works.

Garry has a working knowledge of mammals, reptiles, amphibians and birds. Garry has worked on both private and commercial projects both residential and industrial.

Garry has experience and knowledge for developing and implementing Ecological Impact Assessments, Construction Ecological Management plans, Habitat Regulations Assessments, Biodiversity Net Gain assessments, Biodiversity Enhancement Schemes.

Adam Parker – Adam has worked within the ecology sector since 2018 and offers a firm knowledge for UK Bats and best practice guidelines.

He has been involved with both large commercial and residential surveys from Preliminary Bat Roost Assessments, Emergence Surveys and Mitigation Works for bats.

Adam has supported Chase Ecology since 2018 as a component survey team leader and competently delivers supervision to survey assistance at all levels on site.

Rebecca Georgina Burt – Rebecca has worked within the ecology sector since 2017 and offers a firm knowledge for UK Bats and best practice guidelines for both private residential works to more complex commercial sites.

Rebecca holds a clear understanding of bat survey protocols and the ability to team lead other ecologists on site during phase-1 & phase-2 surveys.

Rebecca holds a firm knowledge for report writing and design/implementation of protection and enhancement features for bats.

Tony Teese – Tony has worked within the ecology sector since 2014 and gained his MSc Ecology and Conservation degree in 2016.

Tony has delivered both phase-1 & phase-2 bat surveys on both commercial and private contracts and has a clear understanding of species best practice guidelines for bats and maintaining legislation.

Tony has developed his skills with Chase Ecology since 2018 and now offers the ability to supervise other survey assistance and team lead emergence surveys.

Annika Smith – Annika has worked as an assistant ecologist with Chase Ecology since 2017 and has in this time gained a suitable level of knowledge for delivering both phase-1 & phase-2 bat surveys.

She has supported works on mitigation and habitat creation and has a good understanding of maintaining best practice guidelines and survey protocols.

Aiden Cowser – Aiden has worked within the ecology sector since 2021 and offers a firm knowledge for UK Bats and best practice guidelines.

He has been involved with both large commercial and residential surveys from Preliminary Bat Roost Assessments, Emergence Surveys and Mitigation Works for bats.

James McConnell - James has worked within the ecology sector since 2022 as a seasonal survey assistant.

He has worked on both private and commercial developments and holds a clear understanding of bat survey best practice guidelines and correct use of technologies whilst conducting emergence surveys.

7.0 References

Bat Conservation Trust. 2012. Bats and Buildings. Bats and the Built Environment Series. London. Bat Conservation Trust. 2018.

http://www.bats.org.uk/pages/bat_boxes.html (Accessed July 2021).

Bat Conservation Trust. 2018.

Bats and Artificial Lighting in the UK.

Bats and the Built Environment Series. London. Collins, J. (ed). 2016.

Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition.

Bat Conservation Trust. Multi-Agency Geographical Information for the Countryside web <http://magic.defra.gov.uk> Mitchell-Jones, A.J. 2004 Bat mitigation guidelines.

English Nature, Peterborough. Mitchell-Jones, A.J. and McLeish, A.P. 1999 (revised 2004).

The Bat Workers Manual. Joint Nature Conservation Committee, Peterborough. Stone, E.L. 2013. Bats and Lighting: Overview of Current Evidence and Mitigation Guidance.

Appendix 1: Mitigation, Enhancement & Protection

This document must be available to all involved in the planned development. All contractors must be aware of the potential of protected & priority species being found on site and care should be taken during works to avoid harm (including during any tree works), if protected species are found then all work should cease and an ecologist should be consulted immediately.

Mitigation

During the four emergence surveys a total of three individual daytime bat roosts and a Whiskered maternity roost were identified.

Building One

Roost 2 – Common Pipistrelle (1 x max count) within West gable which will suffer total loss during development.

Roost 3 – Common Pipistrelle (1 x max count) within lower West facing roof coverings which will suffer total loss during development.

Building two

Roost 1 – Common Pipistrelle (1 x max count) within East gable which will suffer no disturbance under current development proposals.

Roost 4 – Whiskered (13 x max count) within West facing gable.

Prior to any development works which would offer disturbance to any roost locations within building one, a Protected Species Mitigation Licence will need to be obtained from Natural England as below;

Mitigation License to be applied and granted prior to any disturbance works to both bat roosts which have been identified within this report.

Mitigation methods agreed with contractors prior to any development works on site.

During mitigation, a licenced and experienced bat worker will be on site to coordinate the mitigation works and to supervise a hand strip of all roost locations. During this time, any roosting bats located will be moved to a suitable bat box within the site.

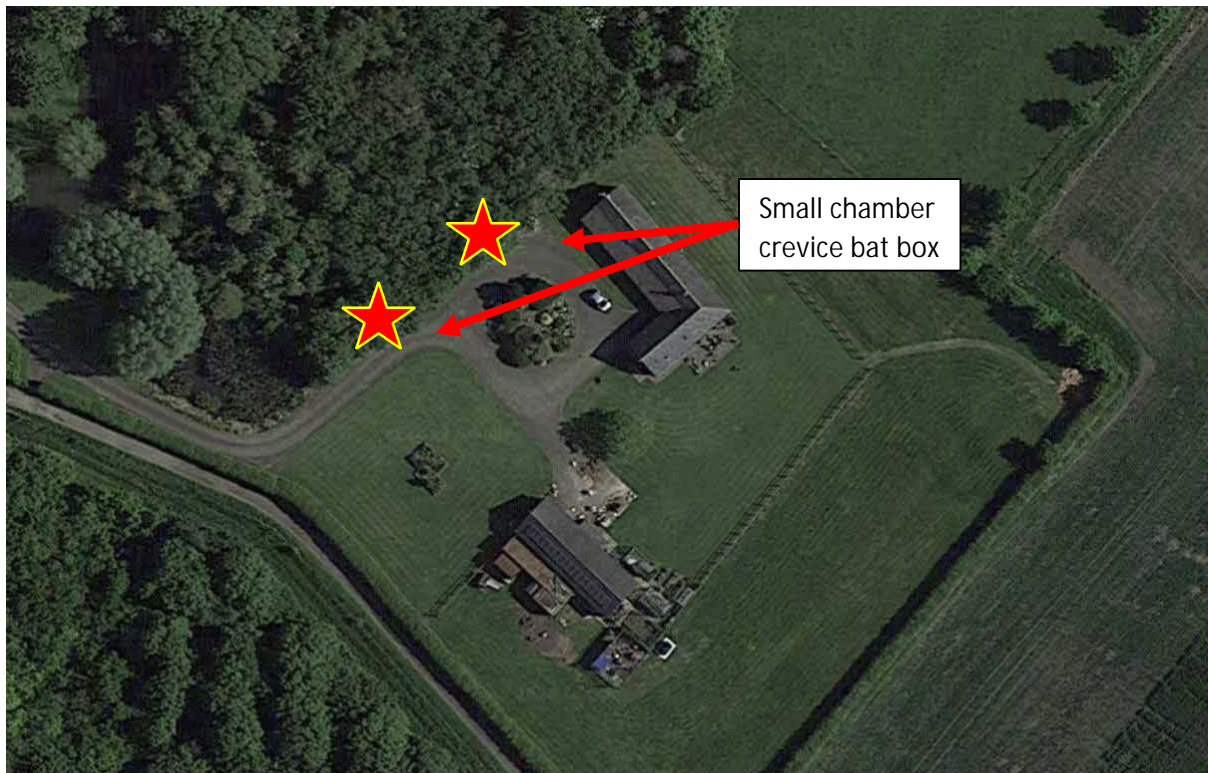
Two bat boxes will be installed within the site and remain as a permanent fixture. This will be two crevice style boxes.

On completion of all mitigation works the licenced ecologist will complete all relevant return documentation to Natural England and conduct any post development checks where appropriate.

In addition to the agreed mitigation requirements, a suitable level of biodiversity net gain has been agreed and will be implemented during the development works.

No development works or maintenance works to building two will be carried out without prior assessment of any impacts which may offer disturbance to roost one or four. If disturbance to roost one or four is likely to take place, then further licenced mitigation would need to take place.

Bat box location within the site



Protection measures to be implemented during development

Lighting

It is recommended that during the development process the levels of lighting such as security floodlighting and lighting around working platforms if any should be limited to reduce the level of disturbance caused to bats which have been recorded locally.

Disturbance caused by high power lighting can cause disturbance to common commuting and foraging areas currently used by bats.

It is advised that all works should be carried out during the hours of daylight to further reduce the levels of disturbance caused to bats and other nocturnal wildlife in the surrounding environment.

Nesting Birds

Although no nesting activities were demonstrated within the building where development will take place consideration and protection must be implemented during March to September to prevent disturbance.

If nesting birds are identified within the building during this time which may face disturbance from any planned works the client should seek advice from an experienced ecologist.

Protection of Wildlife During the development

All excavations if any should be closed where possible during the hours of darkness to prevent entrapment of wildlife such as mammals which may use the site during the hours of darkness for commuting & foraging.

For excavations which require to be left open a shallow slope should be in place to aid escape.

All external pipe's & services must be capped during development/overnight to prevent animals entering/entrapment.

The site should remain in a tidy fashion with waste materials removed daily to prevent any use from wildlife as an au natural refugia.

Appendix 2: Roost Creation/Biodiversity Net Gain

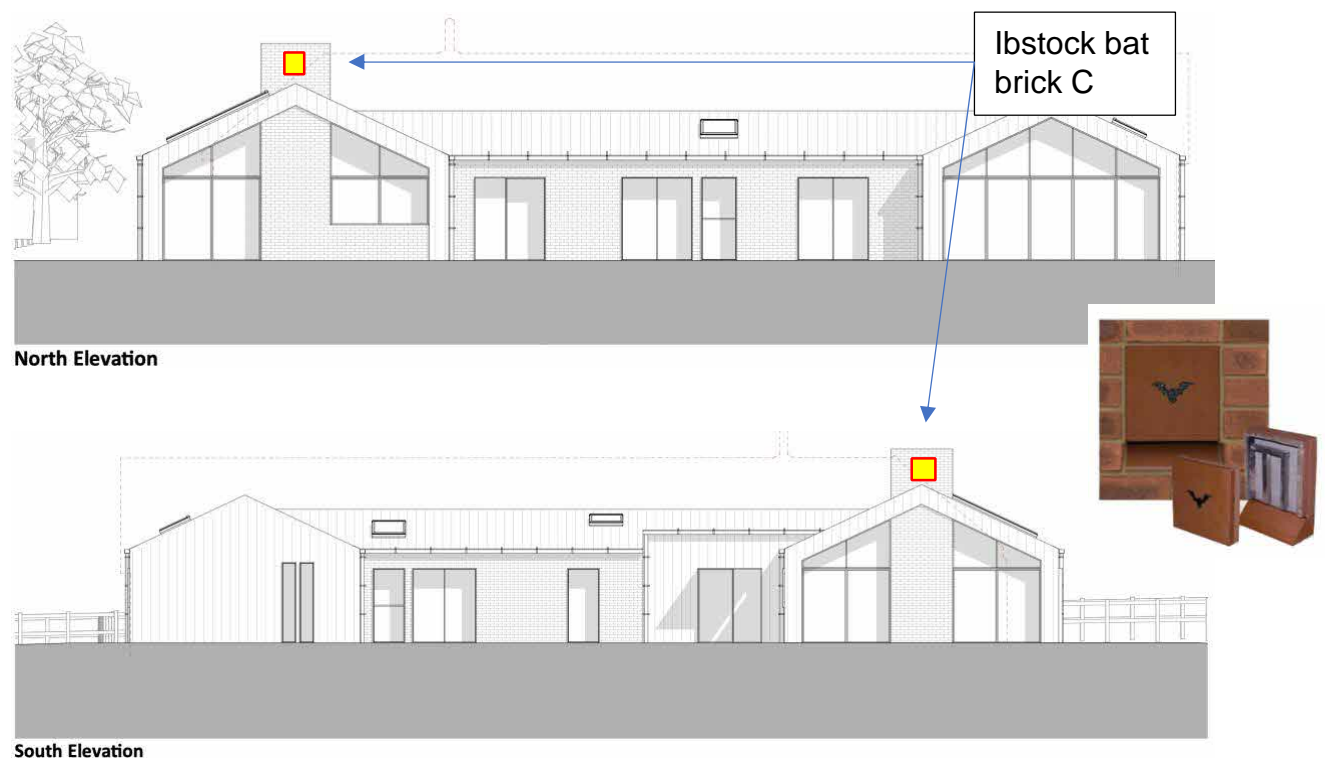
The below biodiversity net gain features have been agreed and will be incorporated within the build/site during the development process and will be maintained by the land owner for no less than ten years.

It is the land owners responsibility to contact an ecologist if any of the features below for protected species suffer damage/disturbance during this time.

As bats are a UK protected species the land owner must be aware that they are not permitted to disturb both the recorded features of bats themselves. This must be conducted by a licenced bat worker only.

Bats

To offer a suitable level of roost creation, a total of two integrated Istock bat brick C boxes will be installed within the new chimney brickworks to offer a suitable daytime roosting habitat for crevice dwelling species.



The Enclosed Bat Box 'C' from Istock is designed for the pipistrelle bat. It is ideal for new builds as it can be integrated directly into the brickwork to produce a discrete but attractive home for bats.

The box has an attractive bat motive on the front and is both durable and fully frost resistant. The inside of the box is designed to create several roosting zones which are ideal for crevice dwelling bats. The bottom entrance means that no maintenance is required as droppings will simply fall out the bottom.

Appendix 3: Great Crested Newt eDNA test results



Folio No: E17871
Report No: 1
Purchase Order: CE4092
Client: CHASE ECOLOGY
Contact: Garry Smith

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: 07/06/2023
Date Reported: 15/06/2023
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
3752	Chilten View Barn CE4092	SP 790 094	Pass	Pass	Pass	Negative	0

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

Reported by: Chris Troth

Approved by: Jackson Young



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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.

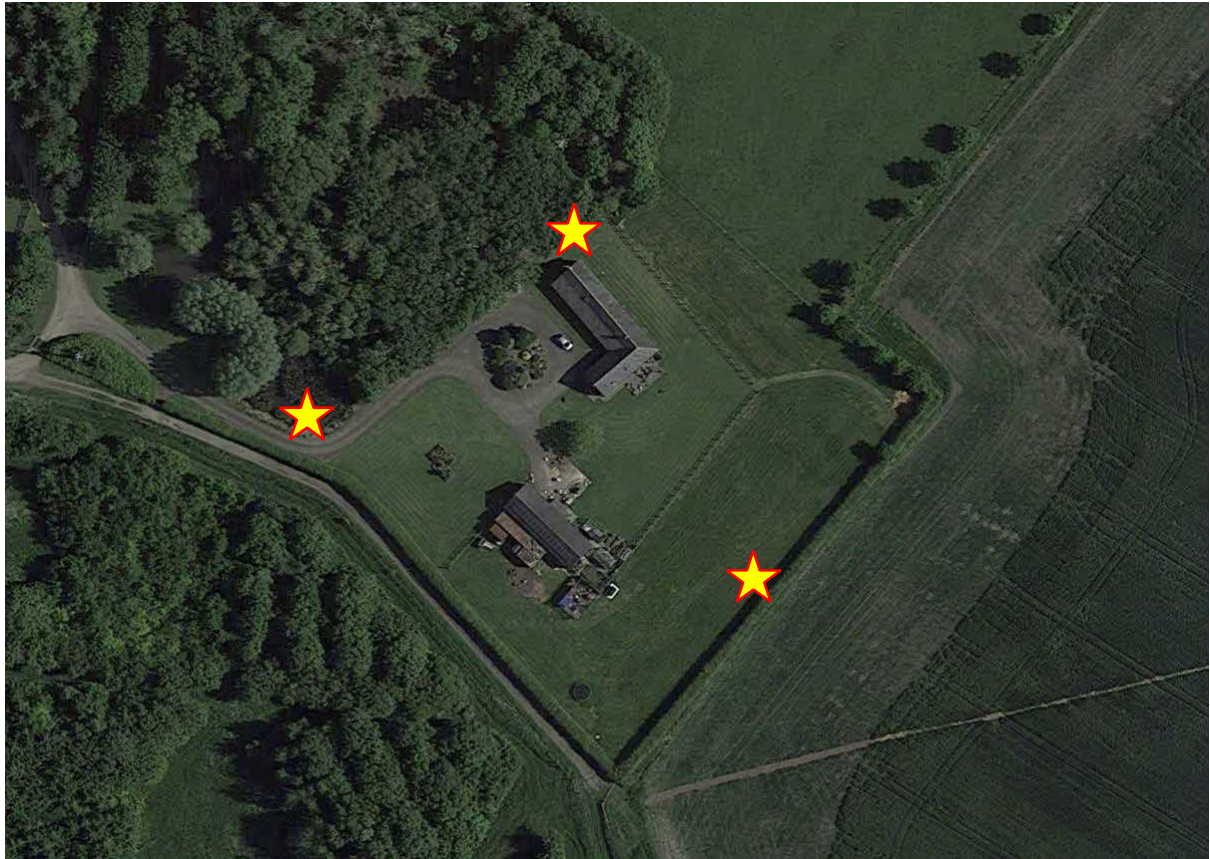


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Appendix 4: Mammal Survey

During the 23rd May 2023 to 1st July 2023, a total of three cameras were installed within the site as below;



During the survey, the below species were recorded to have commuted through the site on occasion;

- 27th May – Muntjac deer x 1
- 3rd June – Muntjac deer x 1
- 4th June – Muntjac deer x 1
- 6th June – Fox
- 11th June - Muntjac deer x 1 & Hedgehog
- 21st June - Muntjac deer x 1
- 22nd June - Muntjac deer x 1
- 28th June - Muntjac deer x 1