MKA Ecology Ltd

New Cambridge House
Bassingbourn Road
Litlington
Cambridgeshire SG8 0SS
01763 262 211

info@mkaecology.co.uk
www.mkaecology.co.uk

Ecology Technical Note: Spring Static Bat Detector Survey

Site	*East Claydon Battery Energy Storage Site*
Project number	*130322*
Client name / Address	*Statera Energy Limited, 4th floor, 80 Victoria Street, London, SW1E 5JL*

Version	**Date**	**Revisions**
1.0	3 June 2024	Original

Author	Stevie Cooper	[redacted]
Reviewed by	Felix Bird	[redacted]
Contact	*MKA Ecology Limited, 01763 262211, enquiries@mkaecology.co.uk*	

INTRODUCTION

Buckinghamshire Council raised a holding objection on 9 January 2024 against the proposed Battery Energy Storage System in East Claydon (planning reference: 23/03875/APP) with regards to ecology. In relation to foraging and commuting bats, the council stated:

"As stated within the limitations of the provided bat report, the first spring static bat detector survey was not successful which has influenced the results. Further surveying is required to ensure a complete picture has been provided of the application site so that the proposed mitigation can reflect this."

Following a meeting on 2 February 2024 between the applicant and the council, it was agreed the spring static detector session would be repeated in April/May 2024 to complete the data set and confirm appropriate mitigation measures (MKA Ecology Ltd, 2024).

The results of this updated survey are detailed below.

Aims and scope

The aims of the spring static bat detector survey were to:

Complete a spring static bat detector survey using an automated detector;
Identify the assemblage of bat species present and level of bat activity in spring;
Locate any key foraging and commuting areas;
Update the previous evaluation from the 2023 bat activity survey; and
Detail recommendations for mitigation and propose any suitable habitat enhancements for bat species, if required.

This report must be read in conjunction with the Bat Activity Report (MKA Ecology Ltd, 2024).

Previous survey effort

A suite of bat activity surveys were conducted in 2023 (MKA Ecology Ltd, 2023). Three species were identified (common pipistrelle, soprano pipistrelle and noctule) as well as individuals recorded to the *Myotis* genus. Low levels of activity were consistently recorded across the transect and automated static sessions. Relatively higher levels of bat activity were recorded around the south-west corner and across the northern hedgerow however no notable areas of commuting and foraging were recorded on Site.

A summary of the 2023 transect data and 2023 static data is provided in Table 1 and Table 2 below.

Table 1: Total passes for each species during transect survey visits including listening stops

Species	Visit			Total
	Spring	Summer	Autumn	
Common pipistrelle	8	12	8	28
Soprano pipistrelle	1	3	1	5
Pipistrellus sp.	3	2	0	5
Noctule	6	1	2	9
Total	**18**	**18**	**11**	**47**

Table 2: Number of species passes recorded by the automated static detector

Species	Visit			Total
	Spring	Summer	Autumn	
Common pipistrelle	127	87	45	**259**

Species	Visit			Total
	Spring	Summer	Autumn	
Soprano pipistrelle	20	2	5	**27**
Noctule	2	6	4	**12**
Myotis sp.	2	6	13	**21**
Total	**151**	**101**	**21**	**319**

Common pipistrelle was the most frequently recorded species, accounting for 81% of all passes within the automated static detector sessions. Soprano pipistrelle records accounted for 8%. Noctule recordings accounted for 4% of calls and *Myotis* species (identified to the genus level) accounted for 7% of calls.

METHODOLOGY

Automated bat detector survey

An automated static bat detector survey was completed in spring 2024. This involved an AnaBat Express automatic bat detector being deployed for five consecutive nights between 10 April 2024 and 15 April 2023. To allow for the data to be compared to the 2023 results, the detector was placed in the original location, alongside a hedgerow containing trees which provide suitable habitat for foraging and commuting bats, shown in Figure 1, Appendix 2.

The AnaBat Express is a frequency division bat detector which records bat calls on to an internal memory card. Sound analysis was completed using AnaLook software and bat call parameters from Russ (2012). The AnaBat Express is activated by high frequency bat calls which trigger a 15 second recording. For the purposes of analysis, a bat pass correlates to a single 15 second recording.

The dates and prevailing weather conditions for the monitoring session is shown in Table 3 , below.

Table 3: Dates for automatic bat detector monitoring sessions and prevailing weather conditions

Session	Dates	Weather description*
1	10 April 2024 - 15 April 2024 (5 nights)	Overall: Good Average night-time temperatures: 9.6°C Average night-time wind speed: 10.4 mph Precipitation: 0.00mm

*Weather records obtained from Buckingham weather station (Weather Underground, 2017)

Surveyors, author and reviewer

Bat call analysis was completed and the report authored by Stevie Cooper, Ecologist at MKA Ecology Ltd. Stevie has two years' experience in undertaking analysis of bat activity and the authoring of corresponding reports. The report has been reviewed by Felix Bird, Senior Ecologist at MKA Ecology Ltd. Felix has over five years' experience as a consultant ecologist.

Constraints

No specific constraints were experienced during the spring 2024 survey. However, there are general constraints associated with automated static surveys, discussed below.

The results taken from bat detector recordings are biased towards bats that use louder echolocation calls. Some species, such as brown long-eared bat *Plecotus auritus*, are known to echolocate quietly on occasions. Therefore, some species may be under recorded due to the limited recording range of the equipment. This is particularly evident during the automatic bat detector surveys where there is no surveyor to record visual cues for these species.

Some groups of bat species use echolocation calls of a very similar structure. These similar calls make identification through call analysis difficult, particularly in cluttered environments where positive identification is often impossible to achieve. In cases where the bat cannot be confidently identified to species level it is identified to genus level, such as *Myotis* sp.

Acoustic surveys allow representative sampling of bat activity across the site which facilitates an understanding of species presence and patterns of activity. However, the measurements of activity can only be used to provide an index of activity and cannot be used to determine absolute abundance of bats using the site. Therefore, the number of bat passes encountered cannot be used to determine numbers of individuals present. The results of the survey can only be taken as an assessment of the risk of there being high concentrations of bats within the Site or around particular habitat features and provide an indication of how bats are using the available habitats.

RESULTS

A total of 15 passes were recorded during the five nights of automated bat static detection. Two species were identified (common pipistrelle and noctule), as well as three passes identified as *Myotis* sp. Common pipistrelle were the most frequently recorded species, accounting for 73% of recorded passes. The full results are shown in Table 4 below.

Table 4: Number of species passes recorded by the automated static detector in Spring 2024

Species	Passes recorded
Common pipistrelle	11
Noctule	1
Myotis sp.	3
Total	**15**

EVALUATION

Very low levels of activity were recorded during the 2024 spring session which was consistent with the low levels of activity recorded in the 2023 surveys,

The species composition was similar to the results of the 2023 surveys, with the most abundant component of the species assemblage comprising common pipistrelle. Soprano pipistrelle were recorded in 2023 in low numbers, but not in 2024.

Following the criteria set out by Reason and Wray (2023), the value of the assemblage is considered to be no greater than Local Importance. This is in line with the findings and conclusions of the Ecology Chapter (MKA Ecology Ltd, 2024b).

The previous recommendations for mitigation and enhancement measures should be retained, and are summarised below. Full details are provided within the Bat Activity Report (MKA Ecology Ltd, 2024a)

Proposed Mitigation Measure 1

Retain, protect and enhance the hedgerow habitat.

Proposed Mitigation Measure 3

A sensitive lighting strategy should be implemented for both the construction and operational phases of the proposed development. Areas previously identified as important for bats must remain in complete darkness. Where night time lighting during construction or operation of the development is necessary, lighting schemes must be designed to avoid excessive light spill.

Proposed Enhancement Measure 1

The planting of species-rich grassland, woodland and native shrubs, enhancing invertebrate populations and therefore a greater foraging resource for bats. The creation of ponds/ wetland areas

Proposed Enhancement Measure 2

A minimum of 20 bat boxes should be installed at the Site.

CONCLUSION

In February 2024 MKA Ecology Ltd were commissioned to undertake a spring automated static detector survey to repeat a 2023 spring session and provide a comphrensive data set of bat activity across the spring season.

The April session recorded a very low number of individuals of common pipistrelle, noctule and *Myotis* sp. These findings were in line with the 2023 results which also recorded low levels of activity from a low diversity of bat species. As a result, the previous recommendations for mitigation are considered to remain valid and should be followed. This includes protection of the hedgerow and stream habitats, as well as the production of a sensitive lighting scheme.

Low levels of bat activity are currently present on site, and the proposed landscaping offers an opportunity to significantly enhance the area for foraging and commuting bats, through the creation of ponds, species-rich grassland and woodland. The provision of a bat box scheme has also been recommended to enhance the local bat population.

REFERENCES

BCT (2023). *Bats and artificial lighting at Night:* Bats and the Built Environment series. Guidance Note 08. Bat Conservation Trust (BCT), London

British Standards Institution (2013) *British Standard 42020:2013, Biodiversity – Code of practice for planning and development*. British Standards Institution: London.

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Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists – Good Practice Guidelines (3rd edition)*. Bat Conservation Trust: London.

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MKA Ecology Ltd (2023b) *East Claydon BESS – Environmental Statement Volume 3 – Ecology and Biodiversity.* MKA Ecology Ltd: Cambridge.

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North Bucks Bat Group (2010). Available online at: https://www.northbucksbatgroup.org.uk/local.html

Reason, P. F.& Wray, S. (2023) *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats*. CIEEM: Ampfield.

Russ, J. (2012) *British Bat Calls – A Guide to Species Identification*. Pelagic Publishing: Exeter.

APPENDICES

Appendix 1: Relevant wildlife legislation and planning policy

Please note that the following is not an exhaustive list, and is solely intended to cover the most relevant legislation pertaining to species commonly associated with development sites.

Subject	Legislation (England)	Relevant criminal offences
Bats (all species)	The Conservation of Habitats and Species Regulations 2017 (as amended) All bat species are listed on Schedule 2, which designates them as European Protected Species. European Protected Species are subject to the provisions of Part 3, Regulation 41 (Protection of certain wild animals).	Deliberate capture, injury or killing of a bat; Deliberate disturbance of a bat; Damage or destruction of a bat roost; To possess, control, transport, sell or exchange, or to offer for sale or exchange, any live or dead bat or part of a bat, or anything derived from a bat or any part of a bat. **Notes** In this interpretation, a bat roost is "*a breeding site or resting place of a bat*". Because bats tend to reuse the same roosts, bat roosts are considered to be protected whether or not the bats are present at the time. In this interpretation, disturbance of animals includes *in particular* any disturbance which is likely – (a) to impair their ability: to survive, to breed or 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

Subject	Legislation (England)	Relevant criminal offences
		(b) to affect significantly the local distribution or abundance of the species to which they belong.
	Wildlife and Countryside Act 1981 (as amended) All bat species are listed on Schedule 5 and are therefore subject to parts of the provisions of Section 9 (Sections 9(4)(b) and (c) and Section 9(5)).	Intentional or reckless disturbance of a bat while it is occupying a roost; Intentional or reckless obstruction of access to a roost; To sell, expose for sale, possess or transport for the purpose of sale, any live or dead bat or any part of, or anything derived from a bat; or Publishing or causing to be published any advertisement likely to be understood as conveying that an individual buys or sells, or has an intention to buy or sell bats. In this interpretation, a bat roost is "*any structure or place which any wild [bat]...uses for shelter or protection*". Because bats tend to reuse the same roosts, bat roosts are considered to be protected whether or not the bats are present at the time.

The Wildlife & Countryside Act 1981 (as amended)

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

Conservation of Habitats and Species Regulations 2017 (as amended)

Full legislation text available at: http://www.legislation.gov.uk/uksi/2017/1012/contents/made

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

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

Several bat species are listed as Species of Principal Importance for the purpose of conserving biodiversity under Section 41 of the NERC Act 2006.

The NERC Act 2006 places a legal obligation on public bodies, including those considering planning applications, to maintain, and where possible enhance, the conservation status of any Section 41 species found on a site. Species included on Section 41 were also included on the UK Biodiversity Action Plan (BAP) and remain an integral part of the Post-2010 Biodiversity Framework.

These species are:

Barbastelle *Barbastella barbastellus*;
Bechstein's bat *Myotis bechsteinii*;
Brown long-eared bat *Plecotus auritus*;
Greater horseshoe bat *Rhinolophus ferrumequinum*;
Lesser horseshoe bat *Rhinolophus hipposideros*;
Noctule *Nyctalus noctula*; and
Soprano pipistrelle *Pipistrellus pygmaeus*.

National Planning Policy Framework (NPPF)

Full text is available at: https://www.gov.uk/guidance/national-planning-policy-framework

A revised NPPF was published on 05 September 2023 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 174 to 188 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

Figure 1: Static bat detector location and transect route from 2023 surveys.