

BAT SURVEYS REPORT

OF

UNIVERSITY OF READING, THE FERNERY



Abricon Ltd
1 Lyons Court
Long Ashton Business Park
Yanley Lane
Long Ashton
Bristol
BS41 9LB
United Kingdom
Telephone: +44 (0)1275 391297
Website: www.abricon.com

Site Address	The Fernery, University of Reading, London Road Campus, Reading RG1 5AQ
Report type	Bat Surveys Report
Client	Purcell Architecture Ltd
Project number	005PURC100

The material and data in this report were prepared under the supervision and direction of the undersigned.

	Name	Position
Prepared by	Stephanie Benden	Ecologist
Checked by	Helen Saunders MCIEEM	Principal Ecologist
Checked and Approved by	Jana Prapotnikova MCIEEM	Principal Ecologist/Director

Revision History		
Version	Issue Date	Revision
1.0	2 nd October 2024	DRAFT
1.0	4 th November 2024	ISSUE
2.0	18 th July 2025	Amendments following change of proposed plans.

DISCLAIMER

Abricon has used reasonable skill and care in completing this work and preparing this report, within the terms of its brief and contract, and taking account of the resources devoted to it by agreement with the client. We disclaim any responsibility to the client and others in respect of any matters outside the stated scope. This report is confidential to the client and we accept no responsibility to third parties to whom this report, or any part thereof, is made known. The opinions and interpretations presented in this report represent our reasonable technical interpretation of the information made available to us. Abricon accepts no responsibility for information or data provided by other bodies, and accepts no legal liability arising from the use by other persons of data, information or opinions in this report.

Except for the provision of professional services on a fee basis, Abricon does not have a commercial arrangement with any other person or company involved in the interests that are subject of this report.

COPYRIGHT © Abricon Limited

The material presented in this report is confidential. This report has been prepared for the exclusive use of the client and shall not be distributed or made available to any other company or person without the knowledge and written consent of the client or Abricon Limited.

VALIDITY

Due to the dynamic nature of ecological conditions the results of the survey(s) and related conclusions and recommendations as contained within this report should only be considered valid for up to 12 months from the date the last survey was undertaken.

Any alterations to the site proposals may invalidate the recommendations contained within this report.

Non-Technical Summary	3
1 Introduction	4
1.1 Survey Background, Aims & Objectives	4
1.2 Site Location & Description.....	4
1.3 Proposed Development	5
2 Methodology.....	6
2.1 Bat Emergence/Re-Entry Surveys.....	6
2.2 Personnel.....	7
2.3 Limitations	8
3 Results.....	9
3.1 Bat Emergence Surveys	9
3.2 Other Protected Species.....	9
4 Evaluation and Impacts	10
4.1 Bats	10
5 Recommendations	11
5.1 Further Actions.....	11
5.2 Bats	11
5.3 Enhancements and Planning Policy	11
References	12
Appendix A – Wildlife Legislation & Policy	13
Appendix B – NVA Viewing Screenshots.....	14

Non-Technical Summary

Abricon Ltd. was commissioned by Purcell Architecture Ltd to undertake a Preliminary Roost Assessment regarding bats and nesting birds at Acacias, University of Reading, London Road Campus, Reading RG1 5AQ. Following the assessment, the Acacias building was identified to have 'moderate' suitability to support roosting bats, and the Fernery was also identified to have moderate' suitability to support roosting bats. Currently, the development plans affect the refurbishment of the Fernery only. Therefore, two bat emergence surveys were completed on the Fernery in line with Bat Conservation Trust (BCT) survey guidelines for buildings which have 'moderate' suitability to support roosting bats.

The site comprised a two-storey house known as The Acacias and a fernery (surveyed structure) on the south elevation of The Acacias. A mature London plane *Platanus x hispanica* tree was located directly adjacent to the south elevation of the fernery which had been assessed to have a single potential roosting feature. Amenity grassland was located to the east of the fernery/house and scattered trees to the north and east of the fernery.

No bats were seen to emerge from or re-enter the structure during the emergence survey effort.

The evidence suggests that bats are not currently using the potential roosting features identified within the building and therefore the proposed development will have **no direct impact** on them.

The results from the Preliminary Roost Assessment (PRA) and the activity survey highlights that no further surveys are required with regards to roosting bats.

The table below provides a summary of the works required, whilst details are provided in the following paragraphs and appendices:

Species/Groups	Phase	Action(s) Required
Bats	Construction	In the unlikely event that bats, or evidence of bats are found during the development, all works must immediately cease, and a licensed bat worker contacted for further advice (5.2). If T1 (London Plane tree) at the south of the fernery should be removed/trimmed using a soft felling approach under the supervision of a bat-licensed ecologist.
Ecological Enhancements	Design and Construction	Ecological enhancements should be included within new developments as detailed in 5.3.

1 Introduction

1.1 Survey Background, Aims & Objectives

- 1.1.1 Abricon Ltd. was commissioned by Purcell Architecture Ltd to undertake a Preliminary Roost Assessment in regard to bats and nesting birds at Acacias, University of Reading, London Road Campus, Reading RG1 5AQ. Following the assessment, the Acacias building was identified to have 'moderate' suitability to support roosting bats, and the Fernery was also identified to have moderate' suitability to support roosting bats. Currently, the development plans effect the Fernery only. Therefore, two bat emergence surveys were completed on the Fernery in line with Bat Conservation Trust (BCT) survey guidelines for buildings which have 'moderate' suitability to support roosting bats.
- 1.1.2 The purpose of the emergence surveys was to identify whether bats are using the structure, for what purpose, and in what numbers. This allows for an accurate assessment of the likely impacts of the proposed development on bats and to make recommendations for any further actions which may be required, including mitigation and/or licensing as appropriate.
- 1.1.3 The aim of this report is to describe the methodology and results of the emergence surveys and to detail the assessment of likely impacts and recommendations resulting from these assessments.
- 1.1.4 The report should be read in conjunction with the Preliminary Roost Assessment report (Abricon, 2024).

1.2 Site Location & Description

- 1.2.1 The development area is comprised of a detached two storey house known as 'The Acacias' with a fernery attached on the south elevation. The site is located within The University of Reading, London Road campus and is centred at National Grid Reference SU 72275 72946.
- 1.2.2 The development area is located within a university campus in the centre of Reading. The site comprised of the two buildings and a small courtyard. A complex of buildings was adjacent the site on its western side, an area of hardstanding to the north and an area of amenity grassland, ornamental yew hedgerow, scattered trees and landscaped pathways were towards the east and south of the site.
- 1.2.3 The local landscape is predominantly urban with further university buildings, residential streets and landscaped/garden areas.



Figure 1 – Surveyed and Development Areas (highlighted) – Accessed on 13/03/2024

Imagery ©2024 Google, Imagery ©2024 Bluesky, Infoterra Ltd & COWI A/S, CNES / Airbus, Getmapping plc, Infoterra & Bluesky, Maxar Technologies, The GeoInformation Group, Map data ©2024

1.3 Proposed Development

- 1.3.1 The current agreed plans are for refurbishments of the fernery to be an enclosed structure, closely matching its original appearance. This will entail:
- Decayed timbers of existing hipped roof removed and replaced with a new roof matching the existing layout, pitch, joinery profiles and metal brackets, but raised by about 150mm in relation to the existing roof height and incorporating opening lights; leadwork flashings to be incorporated to ridge, hips and eaves;
 - New timber windows to be installed to match the design and profiles of the existing decayed windows, incorporating opening lights; these will be hinged at the top, rather than at the side;
 - Rainwater goods (gutters and downpipes) to be renewed in metal to match existing profiles;
 - Existing porch structure including paired entrance doors between the Fernery and the Acacias to be repaired as existing, except for a revised form of glazed roof above
 - New lead-lined gutter to be formed between porch roof and Fernery roof, discharging to a new cast-iron hopper and downpipe;
 - New masonry upstand at junction of Fernery and flat roofs to prevent future decay to wall plate by provision of lead flashings chased into masonry and dressed onto the adjacent flat roof.
- 1.3.2 There will be no change to the Pulhamite walls apart from like-for-like repair, should this be needed. Temporary protection will be necessary to ensure that no damage occurs during the proposed works.
- 1.3.3 The corridor that runs south from the Fernery, adjacent to the London plane tree, will not be disturbed.

2 Methodology

2.1 Bat Emergence/Re-Entry Surveys

- 2.1.1 Bat emergence/re-entry surveys can aid a building inspection by positive confirmation of access and egress points into and out of a structure. This method also allows recordings of bat echolocation calls for species identification to help determine the use and importance of a roost. Emergence surveys may also identify new roost areas where no evidence of bats was found during inspection.
- 2.1.2 The surveys were undertaken by surveyors observing bats and their activity in the field using non-invasive and non-disturbing techniques. Emergence surveys are based on the Bat Conservation Trust's (BCT) survey guidelines 'Bat Survey for Professional Ecologists - Good Practice Guidelines' (Collins, 2023).
- 2.1.3 The surveyors were situated at key locations to ensure that all aspects of the building were observed at all times, particularly those areas that had the highest potential to be used by bats. The dusk activity commenced approximately 15 minutes prior to sunset and continued for 2 hours after sunset.
- 2.1.4 The surveyors were paired with Night Vision Aids (NVAs) Infra-red cameras which are utilised as a complementary method to increase precision during emergence surveys, particularly where there is potential for late-emerging species and/or in dark conditions. (Collins, 2023)
- 2.1.5 Any bats observed were recorded. Information included:
- Time
 - Emergence or entry points
 - Direction of flight
 - Use of landscape
 - Flight characteristics
 - Size
 - Height above ground and
 - Behaviour.
- 2.1.6 Two surveyors and three infra-red cameras were present during the emergence surveys. At least one licenced/experienced bat surveyor was present on each survey. Surveyor locations are displayed in Figure 2 below. For the second survey, additional room access was obtained within the second floor of the Acacias building (labelled senior common room) this enabled the NVA to be set up with a clearer viewpoint of the above and east elevation of the fernery. Therefore, the NVA was set up within the Acacias building was moved a few metres to this viewpoint. As this camera now had a clear viewpoint of the east elevation of the fernery, the NVA covering the east elevation was moved slightly further south.
- 2.1.7 The bat detectors used during the emergence surveys were: Elekon Batscanners paired with Anabat Express detectors for recording purposes. Analysis of recorded sound files was subsequently undertaken using AnalookW.
- 2.1.8 The IR Cameras used were a Nightfox Whisker optical zoom HD night vision binoculars. Placed on a tripod with additional infra-red floodlight.
- 2.1.9 The surveys were undertaken during suitable weather conditions.

Table 1 – Weather Conditions for Emergence Survey

Structure	Date	Sunset/Sunrise	Survey Time		Weather
The Fernery	29/07/24 Dusk	20:56	Start	20:41	22°C, Dry, Cloud 0%, Wind 0
			Finish	22:56	22°C, Dry, Cloud 0%, Wind 0
The Fernery	21/08/24 Dusk	20:13	Start	19:58	18°C, Dry, Cloud 50%, Wind 1
			Finish	22:13	17°C, Dry, Cloud 40%, Wind 1

**Figure 2 - Bat Emergence Surveyor Positions – (Surveyor Locations)**

2.2 Personnel

- 2.2.1 Jana Prapotnikova has worked in consultancy sector since 2006 with a focus on mammalian ecology, particularly bats and badgers. Jana runs Abricon's Ecology Department as well as being involved in project delivery. She has managed various ecological projects and has expertise in a range of ecological survey techniques including Phase 1 habitat assessments and a variety of protected species surveys (e.g. the aforementioned mammal species as well as reptiles and great crested newts). Jana also devises ecological mitigation schemes for a variety of protected species. She is well versed in producing preliminary ecological appraisals, BREEAM/CSH Ecology Assessments, protected species licences, Ecological Impact Assessments (EclA), Construction Environmental Management plans, Biodiversity Enhancement Schemes and Ecological Design Strategies. Jana holds Natural England and Natural Resources Wales Class 2 licence for bats as well as Natural England Class and

Natural Resources Wales Class 1 licence for great crested newts. She is also a Registered Consultant of the Bat Low Impact Class Licence (BLIC) and holds Natural England Bat Earned Recognition Certification (Level 2). Jana is a full member of Chartered Institute of Ecology and Environmental Management (MCIEEM).

- 2.2.2 Stephanie Benden BSc (Hons), MSc, has been working in environmental consultancy since 2018. Steffi is a qualifying member of CIEEM. Her primary experience comprises Preliminary Ecological Appraisal, Ecological Clerk of Works, report writing, reptile translocations, completion of bat emergence/re-entry and activity surveys and analysis of bat sound files. Steffi is a trainee bat carer working under the supervision of a Bat Conservation Trust registered carer.
- 2.2.3 Yasmine Garland BSc (Hons), MSc, has been working in environmental consultancy since 2021 with a focus on Botany and Biodiversity Net Gain. Yasmine is a qualifying member of CIEEM. Her primary experience comprises undertaking Preliminary Ecological Appraisal, Ecological Impact Assessment, condition assessment and habitat mapping for Biodiversity Net Gain calculations, report writing, protected species surveys, assisting with Preliminary Roost Inspections and analysis of data collection.
- 2.2.4 Benjamin Sear BSc (Hons) has been working in environmental consultancy since 2020. He holds a BSc in a related field with honours. His primary experience comprises UKHab habitat surveys for Preliminary Ecological Appraisals, Preliminary Roost Inspections, report writing including EclA, BNG and CEMP's, protected species surveys and habitat mapping for Biodiversity Net Gain calculations. He is a qualifying member of CIEEM and has been trained in Arboriculture for detailed tree surveys with associated report writing and figure creation.
- 2.2.5 Helen Saunders BSc (Hons), PGDip, MCIEEM has worked in ecological consultancy since 2012 and is an experienced project manager and environmental survey coordinator, including for major infrastructure projects. She is a full member of CIEEM and skilled in undertaking various ecological surveys including Preliminary Ecological Appraisal, Ecological Impact Assessment, protected species surveys and habitat condition assessment for Biodiversity Net Gain. Helen is a qualified assessor for river condition assessment for BNG. She has also provided advice on wildlife legislation and commented on ecological matters regarding planning applications on behalf of local planning authorities.
- 2.2.6 Max Alwyn BSc (Hons) is a Seasonal Assistant Ecologist with Abricon Ltd, with a background mainly in behavioural ecology. His experience with bats includes rescue and rehabilitation, radio tracking Greater Horseshoes, and surveys and analysis for ecological consultancy. Max has worked with Abricon for several seasons in between his work with bats in the UK and behavioural research abroad with primates in Gabon and Central America. With Abricon his role comprises primarily bat emergence/re-entry and activity surveys and undertaking sound and video analysis of survey data.

2.3 Limitations

Site Specific Constraints

- 2.3.1 There were no site-specific constraints.

3 Results

3.1 Bat Emergence Surveys

3.1.1 The following section describes the results of the surveys carried out. See the following Appendices for additional information:

- Appendix A – Legislation
- Appendix B - NVA Viewing Screenshots

Summary

3.1.2 No bats emerged from the structure over the course of the surveys.

3.1.3 The structure was subject to two emergence surveys, which is in line with BCT survey guidelines for buildings of 'moderate' suitability for roosting bats (Abricon Limited, Preliminary Roost Assessment of University of Reading, The Acacias and Fernery, June 2024).

3.1.4 Several common pipistrelle *Pipistrellus pipistrellus* bats were noted foraging on site and around the structure for the duration of both of the surveys. The activity was concentrated around the large tree (T1) at the south of the structure.

Dusk Emergence Survey - 29th July 2024

3.1.5 Multiple common pipistrelle bats were noted to continuously forage around the east elevation of the structure and the large tree at the south of the structure for the duration of the survey.

3.1.6 A total of 653 common pipistrelle calls 3 Soprano pipistrelle calls *Pipistrellus pygmaeus*, 3 noctule calls *Nyctalus noctule*, and 2 Leisler's bat calls *Nyctalus leisleri* bat were recorded during the survey.

Dusk Emergence Survey – 21st August 2024

3.1.7 Again, multiple common pipistrelle bats were noted to continuously forage around the east elevation of the structure and the large tree at the south of the structure for the duration of the survey.

3.1.8 A total of 839 common pipistrelle calls 3 Soprano pipistrelle calls and 6 noctule calls were recorded during the survey.

3.2 Other Protected Species

3.2.1 No other protected species were recorded during the survey.

4 Evaluation and Impacts

4.1 Bats

- 4.1.1 All bat species in the UK are protected by national and international legislation (see Appendix A).
- 4.1.2 No bats were seen to emerge from the structure during the survey effort. Individual common pipistrelle bats were observed flying close the structure as part of their foraging and commuting routes.
- 4.1.3 The evidence suggests that bats are not currently using the potential roosting features identified on the structure in the preliminary roost assessment report and therefore the proposed development will have **no direct impact** on them.

Habitat Losses

- 4.1.4 The development will not affect any further habitats within the site as the proposal comprises the restoration of the fernery only.
- 4.1.5 No new lighting is proposed.

Trees

- 4.1.6 T1 at the south of the structure may require a crown reduction or limb removal or even potential felling to enable the works on the adjacent fernery. Numerous bats were noted to forage within the vicinity of this tree.
- 4.1.7 The tree had previously been categorised as PRF-I (a single potential roosting feature was present) and therefore works to the tree risk causing disturbance and/or accidental killing and/or injury of bats during risk disturbing or harming bats and/or destroying a roost.
- 4.1.8 With mitigation, the risk can be removed and there will be no impact on bats or their roosts.

5 Recommendations

5.1 Further Actions

- 5.1.1 In line with BCT guidelines (Collins, 2023) it is considered that no further surveys be required with regards to roosting bats or nesting birds.
- 5.1.2 Table 2 below provides a summary of the works required, whilst details are provided in the following paragraphs and appendices.

Table 2 - Further Actions

Species/Groups	Phase	Action(s) Required
Bats	Construction	In the unlikely event that bats, or evidence of bats are found during the development, all works must immediately cease, and a licensed bat worker contacted for further advice (5.2). T1 (London Plane tree) at the south of the fernery should be removed/trimmed using a soft felling approach under the supervision of a bat-licensed ecologist.
Ecological Enhancements	Design and Construction	Ecological enhancements should be included within new developments as detailed in 5.3.

5.2 Bats

The Fernery

- 5.2.1 No bats were identified utilising the fernery during the completed surveys, and therefore no specific mitigation measures in relation to roosting bats are considered necessary.
- 5.2.2 In the unlikely event that bats, or evidence of bats, are found during the construction phase of the proposed development, all works must immediately cease, and a licensed bat worker should be contacted for further advice. Construction personnel should not handle the bat and should leave it in-situ, covering the immediate area as necessary to protect it from the elements, or further disturbance. If for any reason this is unavoidable (for example if the bat is in immediate danger) and the bat needs to be moved, thick gloves should be worn due to the small but possible risk of European bat lyssavirus (aka rabies) in UK bats. It would then be necessary to inform Natural England (NE) and it may be necessary to obtain a NE development licence. The development would not be allowed to recommence until authorised by NE.

Trees

- 5.2.3 Should T1 be removed/pruned, a soft felling approach should be used under the supervision of a bat-licensed ecologist. Furthermore, removal of this tree should be undertaken in the off-season (between April and October) when bats are likely to be hibernating elsewhere.

5.3 Enhancements and Planning Policy

- 5.3.1 Enhancement features for wildlife should be included in developments to meet the recommendations contained within the National Planning Policy Framework 2024.
- 5.3.2 It is recommended that one bat box (Schwegler 2F or similar woodcrete design box) is installed as high as possible on the southern elevation of one of the mature trees onsite.
- 5.3.3 It is also recommended that one bird box (Vivara Pro Seville 32mm Bird Box or similar) is installed as high as possible on the norther elevation of one of the mature trees onsite.

References

Abricon (2024) Preliminary Roost Assessment, University of Reading, The Acacias and Fernery.

Collins, J. (ed.) (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines 4th edition. The Bat Conservation Trust, London.

Mitchell-Jones A. J. & McLeish, (2004) Bat Worker's Manual Joint Nature Conservation Committee, Peterborough.

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

Appendix A – Wildlife Legislation & Policy

Bats

In the UK, all bat species are fully protected under The Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019 and the Wildlife and Countryside Act 1981 (as amended). It is illegal to kill, injure, disturb, capture, possess or trade bats (or parts thereof); disturb bats whilst in a place of shelter or rest; or damage, destroy or obstruct access to a breeding site or resting place whether bats are present or not.

Operations which may affect bats may require a development licence from Natural England, which provides derogation for an otherwise unlawful activity.

Birds

In the UK, birds and their nests are protected under The Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019 and the Wildlife and Countryside Act 1981 (as amended).

The Wildlife and Countryside Act 1981 (as amended) makes it a criminal offence to:

- Kill, injure, or take any wild bird (with exceptions to species listed in Schedule 2);
- Take, damage or destroy the nest of any wild bird while in use or being built;
- Take or destroy an egg of any wild bird;

The Natural Environment and Rural Communities Act (2006)

Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006) sets out a list of habitats and species that are of principal importance for the conservation of biodiversity in England. The list (including 56 habitats and 943 species) drawn up in consultation with Natural England, provides a guide to local and regional authorities when implementing their duty as defined in Section 40 of the NERC Act 2006;

- “Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.” - Section 40(1).
- “Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat”. - Section 40(3).

Several species of bats and birds are listed as Species of Principal Importance under Section 41 of the NERC Act, 2006.

National Planning Policy Framework (2024)

National Planning Policy Framework (NPPF) (2024) sets out Government Policy on Biodiversity and Nature Conservation and places a duty on planners to make material consideration to the effect of a development on legally protected species when considering planning applications. NPPF also promotes sustainable development by ensuring that developments take account of the role and value of biodiversity and that it is conserved and enhanced within the development.

Appendix B – NVA Viewing Screenshots

	Northeast Elevation	South Elevation	East Elevation
29/07/24			
	Northeast and East Elevation	South Elevation	South Elevation
21/08/24			