MKA
ECOLOGY

Nocturnal Bat Survey

145 Barnet Road, Holmside

Site	*145 Barnet Road, Holmside*
Project number	*112721*
Client name / Address	*Dr Anish Patel*

Version number	Date of issue	Revisions
1.0	*13 July 2021*	*Original*

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Reviewed by	*Will O'Connor CEcol MCIEEM*	[redacted]

Declaration of compliance

This Nocturnal Bat Survey has been undertaken in accordance with British Standard 42020:2013 "Biodiversity, Code of practice for planning and development".

The information which we have provided is true and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

MKA Ecology Ltd is a CIEEM Registered Practice. This means that MKA Ecology Ltd are formally recognised for high professional standards, working at the forefront of our profession.

Validity of data

For sites that require a European Protected Species Licence in respect of bats, the licensing authority in England (Natural England) will expect data from the most recent survey season. Where an absence of roosting bat is indicated, data will be valid for a maximum of 12 months.

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1. EXECUTIVE SUMMARY

In June 2021 MKA Ecology Ltd was commissioned to undertake a nocturnal bat survey of 145 Barnet Road, Holmside. Site visits were undertaken on 22/06/2021 and 06/07/2021. The main building at the Site was identified as having bat roost suitability during the Preliminary Ecological Appraisal undertaken by Microbee Environmental in 2021.

The Site is approximately an acre in size and is comprised of one main residential building and several outbuildings. The Site is surrounded by residential housing to the north and east and a large arable field is present directly south of the Site. The proposed development will likely result in the demolition of all building onsite and the replacement of the main building with a single new dwelling.

The main building onside (building 1) was categorised as having a moderate potential for supporting roosting bats. In accordance with best practice guidelines, two nocturnal surveys were undertaken on this building. The purpose of the survey was to identify bat roosts or bat roost suitability associated with the development site, evaluate likely ecological impacts, assess requirements for further survey work, and describe likely mitigation and/or habitat enhancement requirements.

Two common pipistrelle emergence events were observed from Building 1, a single common pipistrelle from the northern facing aspect and a single common pipistrelle from a slipped tile on the southern aspect.

The proposed works at the Site are likely to result in the disturbance, modification or loss of the bat roosts. It will therefore be necessary to obtain a European Protected Species Licence from Natural England prior to undertaking the work. As a confirmed bat roost is present a further third survey has been scheduled to further inform the application for a Natural England licence.

Mitigation measures as part of the licence will require sensitive timing of works (to avoid the hibernation period), briefing of onsite contractors, a pre-works inspection and an exclusion followed by a soft demolition. Alternative roosting provisions will be required and these should be integrated into the new buildings.

Recommendations have been made to provide alternative roosting habitats for bats post-development at the site. Roost provision will involve a bat box scheme. Furthermore, it is recommended that a sensitive lighting scheme and a native planting scheme is developed to ensure installed roosting features are effective and that bats continue to use the site for foraging and commuting.

2. INTRODUCTION

2.1. Aims and scope of the report

In June 2021 MKA Ecology Ltd was commissioned to undertake a nocturnal bat survey at 145 Barnet Road, Holmside by Dr Anish Patel in order to support a planning application for the demolition the structures on site and the creation of a new-build single dwelling residential property. The surveys were commissioned following recommendations arising from a Preliminary Ecological Appraisal undertaken by Microbee Environmental in June 2021.

The aims of the nocturnal bat survey were to:

- Undertake one dusk emergence and one dawn re-entry survey at buildings at the site to confirm the presence/likely absence of roosting bats;
- Where roosting bats are present, identify the species involved, and, where possible, the population size, the type of roost and access points used;
- Assess the need for a European Protected Species Licence;
- Outline a suitable mitigation strategy for bats at the site, if required; and
- Propose any need for further surveys and suitable habitat enhancements for bat species, if required.

This report must be read in conjunction with the Preliminary Ecological Appraisal (Microbee Environmental 2021). With respect to bats, this report supersedes the findings and recommendations given in that report.

2.2. Site description and context

The location is shown on Figure 1, at the end of this section. Within this report this area is referred to as the Site or 145 Barnet Road. The Site is situated along Barnet Road, EN5 2JZ (central grid reference: TQ 22140 95554) and falls under the authority of London Borough of Barnet. The Site is approximately an acre in size and is comprised of one main residential building, several outbuildings and associated areas of hardstanding and modified grassland and ornamental planting relating to the driveway and garden habitats.

The Site is surrounded by residential housing to the north and east although these properties have large garden areas bordered by hedgerows and trees which could all be used by foraging and commuting bats. The residential buildings in the wider landscape have the potential to provide roosting habitats for bats alongside the main residential building onsite which was categorised as having a **moderate** potential for supporting roosting bats (Microbee environmental 2021).

A large arable field is present directly south of the Site which also contains suitable linear features along the field boundaries which could offer commuting opportunities for bats. As a result, there is a **moderate** risk of the Site itself supporting significant populations of foraging and commuting bats.

2.3. Proposed development

The proposed development involves the demolition of all buildings onsite and the creation of a new single residential dwelling within the footprint of the existing building.

2.4. Previous survey effort

A Preliminary Ecological Appraisal of the Site was conducted by Microbee Environmental in June 2021 (Microbee Environmental 2021). During the survey both external and internal inspections of buildings B2, B3, B4, B5 and B6 were completed in which the buildings showed no evidence of supporting roosting bats and were deemed as **negligible**.

The main building (B1) showed cracked, slipped and lifted tiles on all aspects of the roof as well as a large area of ivy on the northern aspect. Although no evidence of roosting bats was found during the internal inspection the main building was found the have a **moderate** potential to support roosting bats.

2.5. Legislation and planning policy

This nocturnal bat survey has been undertaken with reference to relevant wildlife legislation and planning policy.

Relevant legislation considered within the scope of this document comprised the following:

- The Conservation of Habitats and Species Regulations 2017 (as amended);
- The Wildlife and Countryside Act 1981 (as amended); and
- Natural Environment and Rural Communities (NERC) Act 2006.

In addition to obligations under wildlife legislation, the revised National Planning Policy Framework (NPPF) updated in 2019 requires planning decisions to act towards conserving and enhancing the local environment. Further details are provided in Appendix 1.

A number of bat species are also listed as Species of Principal Importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. The NERC Act 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 include:

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

Leisler's bat *Nyctalus leisleri*, nathusius' pipistrelle *Pipistrellus nathusii*, natterer's bat *Myotis nattereri* and noctule are listed on the London Biodiversity Action Plan.

3. METHODOLOGY

3.1. Survey area

The survey area is shown in Figure 1. Only Building 1 was surveyed during the nocturnal bat surveys, in line with the recommendations made in the Preliminary Ecological Appraisal (Microbee environmental 2021)

3.2. Dusk emergence/dawn re-entry survey

One dusk emergence survey and one dawn re-entry survey were undertaken which confirmed the presence of roosting bats. Following guidance set out in *Bat Surveys for Professional Ecologists – Good Practice Guidelines (3rd edition)* (Collins, 2016) and *Bat Workers' Manual (3rd edition)* (Mitchell-Jones and McLeish, 2004) an additional third dusk emergence survey has been scheduled for the 22nd July 2021.

All bat activity observed on Site was recorded and the time and species noted, along with behaviour (i.e. emerging from roost, commuting, foraging). The start and finish time of the survey visits were recorded, as well as the date, wind direction and force, temperature, precipitation and cloud cover for each visit. A map of the area to be surveyed was used by each surveyor to show bat emergence locations and flight lines.

The dusk emergence survey began 15 minutes to half an hour before sunset and continued for 1.5 to 2 hours after sunset. The dawn re-entry survey began 1.5 to 2 hours before sunrise and finished 15 minutes after sunrise.

3.3. Equipment and sound analysis

Surveyors used broadband bat detectors (Elekon Batlogger M or tablets and Echo Meter Touch) to record bat call data. Sound recordings were later analysed using BatSound and Bat Explorer software. Identification of bat calls was undertaken using the parameters set out by Russ (2012).

3.4. Dates, times and weather conditions

The dates, times and weather conditions are given for each site visit, are given in Table 1, along with the buildings surveyed and the equipment used.

Table 1: Survey dates, times, weather conditions and equipment used

Date of each survey visit	Start and end times, sunset/sunrise times	Building reference	Equipment used	Weather*
22/06/2021(dusk emergence)	Start: 21:08 End: 22:53 Sunset: 21:23	Main House	Bat detectors: Elekon BatloggerM EchoMeter Touch	Start temp: 14 End temp: 12 Precipitation: None Wind: 1 Cloud cover: 2/8
Comments: Three surveyors				
06/07/2021 (dawn re-entry)	Start: 3:22 End: 5:07 Sunrise: 4:52	Main House	Bat detectors: Elekon BatloggerM	Start temp: 13 End temp: 14 Precipitation: Low Wind: 1 Cloud cover: 3/8
Comments: Three surveyors				
22/07/2021 (dusk emergence) To be completed	To be completed	To be completed	To be completed	To be completed
Comments: Three surveyors				

*Wind as per Beaufort Scale / Cloud cover given in Oktas.

3.5. Surveyors

The nocturnal bat surveys were undertaken by the following surveyors:

- Josh Pryke Qualifying CIEEM member, Graduate Ecologist at MKA Ecology Ltd. Josh has over three years' experience conducting nocturnal bat surveys.
- Megan Stigling Qualifying CIEEM member, Graduate Ecologist at MKA Ecology Ltd. Megan has over a years' experience conducting nocturnal bat surveys.
- Libby Pool Qualifying CIEEM member, Graduate Ecologist at MKA Ecology Ltd. Libby has over six months' experience conducting nocturnal bat surveys.
- Evan Burdett Qualifying CIEEM member, Graduate Ecologist at MKA Ecologist Ltd. Evan has over three months' experience conducting nocturnal bat surveys.

The report was written by Megan Stigling and was reviewed by Will O'Connor, Director and Principal Ecologist at MKA Ecology Ltd. Will has over 10 years' experience as a consultant ecologist and holds a Level 2 Bat Licence.

3.6. Constraints

The results taken from bat detector recordings are biased towards bats that use louder echolocation calls. Therefore, quiet bats, such as brown long-eared bat *Plecotus auritus*, may be under-recorded due to the limited recording range of the equipment. This was not considered to present a significant constraint as surveyors were vigilant to ensure that visual cues indicating the presence of quiet species were recorded.

In some circumstances it is not possible to confirm that species of bat with absolute confidence using sound analysis techniques. In particular some calls of common pipistrelle and soprano pipistrelle overlap making species identification difficult. In these circumstances the bat can be identified as a *Pipistrellus* sp. only. Within this report where *Pipistrellus* sp. is used this refers only to common pipistrelle and soprano pipistrelle. This should not be interpreted as other species of the *Pipistrellus* genus, such as Nathusius' pipistrelle *Pipistrellus nathusii* which, although it occurs relatively frequently within the UK is not commonly recorded. Where Pipistrelle species other than common or soprano pipistrelle are suspected this will be directly referenced and discussed within the report. Similarly calls of *Myotis* species can demonstrate a large number of overlapping parameters making identification difficult. Where this is the case a bat has been identified as *Myotis* sp.

3.7. Assessment

The guidelines for categorisation of bats in England by distribution and rarity (adapted from Wray *et al.*, 2010) are shown in the tables below.

Table 2: Rarity of bat species within England

Rarity within range (England)	Species
Rarest (population under 10,000)	Greater horseshoe bat *Rhinolophus ferrumequinum* Bechstein's bat *Myotis bechsteinii* Alcathoe's bat *Myotis alcathoe* Greater mouse-eared bat *Myotis myotis* Barbastelle *Barbastella barbastellus* Grey long-eared bat *Plecotus austriacus*
Rarer (population 10,000 to 100,000)	Lesser horseshoe bat *Rhinolophus hipposideros* Whiskered bat *Myotis mystacinus*

Rarity within range (England)	Species
	Brandt's bat *Myotis brandtii* Daubenton's bat *Myotis daubentonii* Natterer's bat *Myotis nattereri* Leisler's bat *Nyctalus leisleri* Noctule *Nyctalus noctula* Serotine *Eptesicus serotinus*
Common (population over 100,000)	Common pipistrelle *Pipistrellus pipistrellus* Soprano pipistrelle *Pipistrellus pygmaeus* Brown long-eared bat *Plecotus auritus*

Table 3: Level of importance of roost type

Geographic frame of reference	Roost type
District, Local or Parish	Feeding perches (common species) Individual bats (common species) Small numbers of non-breeding bats (common species)
County	Maternity sites (common species) Small numbers of hibernating bats (common and rarer species) Feeding perches (rarer/rarest species) Individual bats (rarer/rarest species) Small numbers of non-breeding bats (rarer/rarest species)
Regional	Mating sites (rarer/rarest species) including well-used swarming sites Maternity sites (rarer species) Hibernation sites (rarest species) Significant hibernation sites for rarer/rarest species or all species assemblages
National/UK	Maternity sites (rarest species) Sites meeting SSSI guidelines*
International	SAC sites

*Sites meeting SSSI (Sites of Special Scientific Interest) selection guidelines include Barbastelle maternity roosts and mixed species hibernacula assemblages

4. RESULTS

4.1. Results summary

Bat activity recorded at the Site mainly comprised of common pipistrelle passes. Only common pipistrelles were recorded during the dawn re-entry survey and the majority of passes recorded in the dusk re-entry survey were also common pipistrelles, with one soprano pipistrelle pass recorded.

Bat activity was relatively low to the north of Building 1 with all but one record being heard and not seen. The majority of bats were recorded to the rear of the property and were observed commuting along the hedgerow running along the eastern border. Foraging activity was also observed in the back garden during the survey effort. It is suspected that bats commute over the Site to forage in the fields to the south and may occasionally forage in the garden of the property.

Two emergence events were recorded during the dusk emergence survey, a potential emergence from the northern facing aspect and a confirmed emergence from the southern facing aspect (Figure 1). In each occasion a single common pipistrelle was observed. No re-entries were observed during the dawn survey. Building 1, therefore most likely contains a roost for single or small numbers of common pipistrelle (1-2 bats).

The results from the nocturnal bat survey are summarised in Table 4 and are shown in Figure 1 below.

Annotated site photographs are provided in Appendix 2. Raw survey data are provided in Appendix 3.

Table 4: Roost types and locations at 145 Barnet Road, Holmside

Date	Species	Roost type*	Structure reference	Roost location	Access points	Dimensions or location of roost
Dusk emergence						
22/06/2021	Common pipistrelle	Day	Main House	Under slipped tile on the south facing aspect	Loose tile	Not known
22/06/2021	Common pipistrelle	Day	Main House	Unknown area of roof on the north facing aspect	Not Known	Not known

Notes: Two bat emergence events, south facing aspect at 21:42, north facing aspect at 21:43

*Include note about uncertainties in roost type classifications if necessary

4.2. Dusk emergence survey

A dusk emergence survey was completed on 22 June 2021. Sunset was at 21:08. Three surveyors were positioned around the building with surveyor positions shown in Figure 1, and the results are given below.

The first bat (common pipistrelle) was recorded at 21:42 emerging from the southern aspect of the building, confirming the presence of a bat roost within the building. Twelve common pipistrelle passes were recorded within the rear garden between 21:44 and 22:53 with a single soprano pipistrelle recorded at 22:07 foraging within the garden. Activity was much lower at the front of the house with only a single common pipistrelle potentially emerging from the roof at 21:43. No other bats were seen flying near the front of the building for the duration of the survey although seven common pipistrelle were heard but not seen.

4.3. Dawn re-entry survey

The dawn re-entry survey was completed on 06 July 2021. Sunrise was at 04:52. The first and only bat (a common pipistrelle) was recorded at 04:46 and was heard only. No other bat activity was heard or observed during the survey.

Figure 1: Emergence locations from Building 1

5. EVALUATION AND MITIGATION PROPOSALS

The following evaluation is based on the combined information from the Preliminary Ecological Appraisal and the dusk emergence and dawn re-entry survey undertaken on Building 1.

5.1. Evaluation

The conservation value of the roosts detected during the survey effort of Building 1 at 145 Barnet Road were evaluated using the methodology developed by Wray et al. (2010). Within this methodology, common pipistrelle are considered to be common species within England. Roosts of individual or small numbers of non-breeding bats of common species are considered to be of Local value. This applies to the common pipistrelle roosts in the southern and northern facing aspects of Building 1.

The species evaluation is summarised in Table below.

Table 5: Interpretation and evaluation of conservation significance

Structure	Species	Estimate of number of individuals	Site status assessment (e.g. hibernation, feeding roost, swarming site, etc.)	Conservation significance of roost (based on Wray et al., 2010)	Use and importance throughout the year*
Main House	Common pipistrelle	2	Summer day roost	Local	Occasionally through the summer and possibly winter

*e.g. used by different species at different times, hibernation potential, etc.

5.2. Ecological impacts in absence of mitigation

The proposed development at 145 Barnet Road, Holmside will likely involve the demolition of the all of the buildings onsite and the construction of a single replacement building. This may will result in the loss of bat roosts identified in Building 1. There is a risk that individual bats may be killed, injured or disturbed in their roosts during the works, without appropriate mitigation measures.

Predicted scale of impacts of this development on species status are summarised in Table 66.

Table 6: Predicted scale of impact of development on species status

Species	Roost type	Predicted scale of impact			Notes
		Site	County	Regional	
Common pipistrelle	Day	X			Disturbance, killing/injuring

5.3. Licensing requirements and the 'three tests'

Where impacts are predicted on a bat roost it is necessary to obtain a European Protected Species mitigation licence. A licence is required for disturbance, modification or destruction of a bat roost. Licensing should be considered as a last resort and working methods which avoid the need for a licence should be explored first. In some circumstances it is not possible to avoid the need for a licence, and this is likely to be the case for the identified roosts at 145 Barnet Road, Holmside.

In order to obtain a licence the applicant must satisfy three tests to show that:

- The conservation status of the species can be maintained;
- That there is a proven need for the proposed works; and
- That there is no satisfactory alternative.

The licence application forms two parts; the method statement and the reasoned statement. The method statement is produced by the ecologist and should be designed to meet the conservation status test. The method statement will outline the current status of bat species at the site and describe in detail how this will be maintained through mitigation and compensation. The method statement will form part of the final licence agreement which will be a legally binding document. It is therefore of the upmost importance to ensure that all parties are satisfied with the proposals within this document and changes can be time consuming and cause delays. For small scale residential schemes it is not necessary to complete a reasoned statement.

5.4. Avoidance, mitigation, compensation and enhancement measures (mitigation strategy)

The following outline mitigation strategy is proposed, although it should be noted that this is subject to changes following consultation with Natural England during the licence application process.

The overall aim of the mitigation should be to ensure that there is no detriment to the conservation status of bats. This entails the maintenance of the population likely to be affected by the development and wherever possible the addition of features to benefit the population.

Mitigation should be proportionate in relation to the size and type of bat roost/s present. At 145 Barnet Road, Holmside this relates to a small common pipistrelle roost.

Stage 1 – Mitigation to prevent harm to individual bats

Timing of works

Works to the building should be avoided during the hibernation period when bats may not have sufficient energy reserves or food sources to survive disturbance. The hibernation period for bats runs from November to February inclusive, and so initial works should be scheduled for outside this time period.

Briefing of onsite contractors

All onsite contractors will be made aware of the presence of bat roosts and the legislation that protects these species. All onsite contractors will be made aware of the contents of the method statement (as this will be legally binding and must be adhered to). A briefing will be provided by a licensed bat ecologist to detail the contents of the method statement and outline the process which should be followed. A hard copy of the method statement will be present on site at all times for reference.

Pre-works inspection

Prior to any works on site a bat inspection survey will be undertaken to identify the locations of roosting bats.

Exclusion

During the pre-works inspection survey any suitable roosting locations which are not occupied by bats will be blocked to ensure that they are not used during works. Where bats are identified during the pre-works inspection, or where areas cannot be adequately inspected (such as deep crevices), non-return valves will be fitted for five nights (of fair-weather conditions) to allow bats to leave and not return).

The non-return values will be made using plastic down pipe (approximately 60mm diameter), in lengths of around 200m, with a 100mm length plastic sleeve of similar diameter. The downpipe will be cut to fit the hole or gap. Different gauges of pipe will be available should they be required.

Please note that the successful exclusion of bats prior to works will depend on adequate access arrangements which may require the use of specialist access equipment.

Supervised soft demolition

Following the exclusion of bats from all suitable roosting locations a licensed bat ecologist will supervise the removal of any key areas which may contain roosting bats. This will include removal of roof coverings if applicable.

If a bat is discovered during unsupervised times work will cease immediately and the named ecologist called for advice. This advice will include leaving the bat to disperse of its own accord, or to wait until the licensed bat handler has arrived to move the bat if required. Building contractors will be explicitly forbidden from handling bats.

Any bats found during works will be moved to a secure location should this be required. Bats will be moved to the bat boxes to be positioned at the site.

Stage 2 – Compensation to provide adequate alternative roosting provisions

Roosting provisions

It is recommended that species-specific roosting habitat is designed and provided for common pipistrelle on site. Roosting habitat should be provided during and after construction, and should consist of bat boxes integrated into the fabric of the new building. Species-specific roost provision design should be guided by the known roost requirements of the species on site. Some bat species roost in crevices, including on the external parts of buildings, whilst others require roof voids or other spaces that they can fly in before emerging (for example, for light-sampling behaviour). The common pipistrelle roosts at Holmside will be adequately catered for with integrated bat boxes. These should be positioned as close as possible to the existing access points.

Table 7: Species-specific roost types and sizes (adapted from Mitchell-Jones, 2004)

Species	Summer/ maternity roosts	Hibernation sites
Common pipistrelle	Crevice dweller, but sometimes enters roof voids	Hibernates in a variety of placed, which may be quite exposed. Frequently in cavities in buildings, rarely underground.

Surrounding habitat provisions

Existing vegetation will be enhanced with native planting close to the access of the new bat roost provisions to ensure adequate cover for emerging and re-entering bats. Ideally, shaded vegetated flight paths would join the roost entrances to nearby fields and commuting lines. This vegetation will be maintained to ensure that it does not obstruct the access point/s.

Lighting strategy

A sensitive lighting scheme will be developed to ensure that there is not unnecessary light spill within the site. External lighting, such as security lights or road or path lighting close to roost entrances must be avoided. Down-lighting will be used and any security lighting will be fitted with a short timer. No roosting provisions or access points will be directly lit and dark corridors will be maintained across the

site. Guidance has been published by the Bat Conservation Trust (2018) on methods to reduce light spill and light pollution.

6. RECOMMENDATIONS

The following recommendations are made based on the combined information from the Preliminary Ecological Appraisal and the dusk emergence and dawn re-entry surveys undertaken in 2021.

The proposed development at 145 Barnet Road, Holmside will likely involve the demolition of the all of the buildings onsite and the construction of a single replacement building. This will result in the loss of bat roosts identified in Building 1. There is a risk that individual bats may be killed, injured or disturbed in their roosts during the works, without appropriate mitigation measures.

It is a criminal offence to destroy a resting place of bats (a roost), kill or injure or disturb bats. Where impacts such as these are predicted it is necessary to obtain the relevant derogation licence, which in this case is a European Protected Species mitigation licence. Planning permission should be obtained before seeking the European Protected Species mitigation licence.

The last dusk survey must be completed prior to the licence application which will better inform and support the licence application. This is currently scheduled for the 16th July 2021.

In order to satisfy Natural England, the government body responsible for issuing European Protected Species mitigation licences, that the conservation status of the bat species present at the site can be maintained, it will be necessary to develop a mitigation strategy. The proposed mitigation strategy is set out within Section 5.4, above, but may be subject to change during consultation with Natural England during the licence application process.

Recommendation 1

Obtain planning permission for the proposed development and complete the third nocturnal bat survey prior to the European Protected Species mitigation licence application.

Recommendation 2

Obtain the European Protected Species mitigation licence for the proposed works.

Recommendation 3

Undertake all work with the bat mitigation strategy agreed with Natural England.

Summary of recommendations

Table 7 below summarises the requirement for further work at the site in relation to bats and the stage of development at which the work should be undertaken.

Table 7: Summary of further work required at 145 Barnet Road, Holmside

Species	Pre-planning action required?	Pre-construction action required?	Construction phase mitigation required?	Enhancements proposed?
Bats	None	Complete the third nocturnal bat roost survey. Obtain licence from Natural England	Work completed in accordance with method statement of licence.	Bat boxes and habitat enhancements

7. CONCLUSIONS

MKA Ecology Ltd undertook two nocturnal bat surveys of Building 1 at 145 Barnet Road, Holmside in June and July 2021 to identify the presence of roosting bats at the Site. Building 1 was found to contain a common pipistrelle roost within a slipped tile on the southern facing aspect and within the roof of the northern facing aspect. These are non-breeding roosts, comprising of a small number of individual bats. The overall importance of these roosts are considered to be valued at a local level.

The proposed works at the Site are likely to result in the disturbance and loss of the bat roosts present within the roof. It will therefore be necessary to obtain a European Protected Species Licence from Natural England prior to undertaking the work. This will require the third survey to be completed which is currently scheduled for the 16th July 2021.

Mitigation measures are recommended to provide alternative roosting habitats for bats during and post-development at the Site. Roost provision will involve a bat box scheme to incorporate roosting features in similar areas within the new building. Furthermore, it is recommended that a sensitive lighting scheme and a native planting scheme is developed to ensure installed roosting opportunities are effective and that bats continue to use the site for foraging and commuting. Native planting schemes will also form part of wider biodiversity enhancements for the site.

Bats do present a constrain to the proposed development, however, due to the small size of the roost and the presence of common and widespread species onsite it is though that through the above mitigation and roost provisions it is more than feasible to maintain the roosting conservation status of the bats onsite.

8. REFERENCES

Bat Conservation Trust (2018) *Bats and artificial lighting in the UK*. Built Environment Series, Guidance Note **8.**

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

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9. APPENDICES

Appendix 1: Relevant 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 • (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: https://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/government/collections/revised-national-planning-policy-framework

The revised NPPF was updated on 19 February 2019 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 170 to 183 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

"[P]*romote 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: Site photographs

Photograph 1: Main house (south aspect) and location of southern roost site

Appendix 3: Raw survey data

Time	Location	Common Name	Passes	Comments
Survey 1: 22/06/2021				
21:43	S	Common pipistrelle	1	Emerged from loose tile
21:43	N	Common pipistrelle	1	Emerged from northern aspect of roost
21:43	N	Common pipistrelle	1	Heard not seen (HNS)
21:44	S	Common pipistrelle	1	Commuting along hedgerow from the east
21:45	N	Common pipistrelle	1	HNS
21:48	S	Common pipistrelle	1	Commuting along hedgerow to the north
21:48	N	Common pipistrelle	1	HNS
21:58	S	Common pipistrelle	1	Pass
21:58	S	Common pipistrelle	1	HNS
22:08	S	Soprano pipistrelle	3	Commuting along hedgerow
22:11	S	Common pipistrelle	1	Foraging in garden
22:11	S	Common pipistrelle	1	HNS
22:17	N	Common pipistrelle	1	HNS
22:18	S	Common pipistrelle	1	Circling around the garden
22:21	S	Common pipistrelle	1	HNS
22:22	S	Common pipistrelle	1	Flew over from the south

Time	Location	Common Name	Passes	Comments
22:23	S	Common pipistrelle	1	Continued flight from above bat
22:40	S	Common pipistrelle	2	Commuting along the hedgerow
22:40	N	Common pipistrelle	1	HS
22:53	S	Common pipistrelle	1	Pass
Survey 2: 06/07/2021				
04:46	N	Common pipistrelle	1	HNS

Appendix 4: Bat box recommendations

Bat box recommendations

A wide range of bat boxes are available to suit a variety of species and design requirements. Bat boxes can be, built directly into the wall structure (dependent on box design).

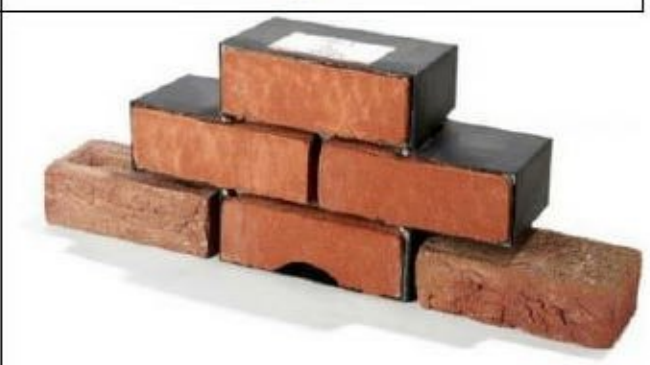
Boxes are more likely to be inhabited if they are located where bats feed and it may help to place the box close to features such as tree lines or hedgerows, which bats are known to use for navigation and can provide immediate cover for bats leaving the roost. Boxes should be placed in areas sheltered from strong winds and are exposed to the sun for part of the day. Access to any bat roosting features should not be lit and should also be at a reasonable height to avoid predation (at least 2m if possible, preferably 4-5m).

Maternity roosts need warmth and should be sited on a southerly or western aspect. Male roosts and winter hibernation roosts are best positioned on a northerly aspect. Materials for roosts should be rough for grip, non-toxic or corrosive and with no risk of entanglement.

Bat boxes for buildings

Integrated

Example	Description	Picture
Ibstock brick enclosed bat boxes	https://ibstockbrick.co.uk/kevington/eco-products/ Dimensions: 215 x 215 or 215 x 290 (mm) These boxes are ideal for new-build homes and are designed specifically for pipistrelle bats. They come in a range of sizes brick types. They are self-cleaning, so require no maintenance.	

Example	Description	Picture
		
Habibat integrated bat boxes	http://www.habibat.co.uk/integrated-bat-boxes These integrated bat boxes are made of insulating concrete which provides an internal roost space, and can be integrated into the fabric of a building as it is built or renovated. They offer boxes in a range of sizes and styles, and can all be customised with a range of finishes. This includes, brick, block, stone, wood or a rendered finish, ensuring the box is unobtrusive and aesthetically pleasing	 
Bird Brick House bat box	https://www.birdbrickhouses.co.uk/brick-nesting-boxes/bat-box/ These bat boxes can be supplied in brick fronted, half bond and quarter bond brickwork or alternatively with a stainless steel mesh fitted to the front. The mesh is designed for optimum adhesion in render and stonework applications. A basic version can be fitted directly behind weatherboarding or into studwork. These bat boxes are suitable for a range of bat species, the entrance hole and internal design can be tailored to suit different species of bat	 

Example	Description	Picture
Brick Box Type 27	www.schwegler-nature.com Dimensions: (h) 26.5 x (w) 18 x (d) 24 cm Weight: 9.5kg Installation: Can be flush with outside wall and rendered or covered so only the entrance hole is visible. This box is ideal for all types of bats that inhabit buildings. This box is designed to be similar to a natural woodpecker hole with the same shallow, oval depression in the floor.	
Schwegler 1FE	www.schwegler-nature.com Dimensions: (h) 30 x (w) 30 x (d) 8 cm Weight: 5.1kg Installation: Fixed to external walls or set into masonry and rendered. This box is ideal for all types of bats that inhabit buildings. This box is suitable for roosting and can be used to allow bats to crawl into existing roosting areas, such as cavities within buildings or used as a complete bat roost itself, without requiring cavities behind it. The box is self- cleaning and can be painted over with air-permeable paint.	 

Example	Description	Picture
Built-in Woodstone bat box	https://www.nhbs.com/build-in-woodstone-bat-box Dimensions: (H) 500 x (W) 210 x (D) 160mm, Weight: 9.48kg This bat box has been specifically designed to fit into the cavity of house walls, with the entrance sitting flush with the outside bricks. It is manufactured from WoodStone with removable side panels so that several boxes can be placed side by side. WoodStone is a mixture of sawdust from FSC wood sources and concrete, and it is designed to last for years. It is breathable and Woodstone maintains a consistent temperature inside, providing excellent insulation for roosting bats.	

Bat tiles

Bat tiles are designed to ensure that roosting opportunities remain available for bats within new roofs, providing access points under the roofing felt or the roof void. Below is a list of suppliers.

Example	Description	Picture
Tudor roof tiles	https://www.tudorrooftiles.co.uk/bat.html Tile dimensions (approx.): 255 x 150mm These tiles are designed to fit into a row of roofing tiles and come in a variety of colour styles. The top tile has a raised tunnel and the two lower tiles have cutaway sections; in combination, these provide a roost space for bats to crawl into. If the underfelt is opened then the tiles will also provide access to the loft space.	 

Example	Description	Picture
Habibat tile	http://www.habibat.co.uk This is a roof tile which has been modified to allow bats either under the roof felt or under the roof void. It is available in a number of different materials. It consists of a vacuum-moulded plastic cowl embedded into a tile of choice. The access cowl is designed to prevent rainwater ingress to the roof but is of correct size and roughened to be suitable for bats.	

Appendix 5: Surveyor positions

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