

**129 WHITEKNIGHTS ROAD, READING,
BERKSHIRE**

**PRELIMINARY BAT ROOST
ASSESSMENT**

A Report to: Hives Architects LLP

Report No: RT-MME-156393

Date: December 2021



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REPORT VERIFICATION AND DECLARATION OF COMPLIANCE

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

Report Version	Date	Completed by:	Checked by:	Approved by:
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The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

DISCLAIMER

The contents of this report are the responsibility of Middlemarch Environmental Ltd. It should be noted that, whilst every effort is made to meet the client's brief, no site investigation can ensure complete assessment or prediction of the natural environment.

Middlemarch Environmental Ltd accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.

VALIDITY OF DATA

The findings of this study are valid for a period of 12 months from the date of survey. If works have not commenced by this date, it may be necessary to undertake an updated survey to allow any changes in the status of bats on site to be assessed, and to inform a review of the conclusions and recommendations made.

NON-TECHNICAL SUMMARY

In November 2021, Hives Architects LLP commissioned Middlemarch Environmental Ltd to undertake a Preliminary Bat Roost Assessment at 129 Whiteknights Road, Reading. This assessment is required to inform a planning application associated with partial demolitions and extensions to the existing residential building.

Middlemarch Environmental Ltd previously undertook a Preliminary Bat Roost Assessment in July 2020 (Report RT-MME-152004-02 Rev A). As a result of the recommendations made in this report, dusk emergence and dawn re-entry bat surveys were carried out between 10th August 2020 and 8th September 2020. No bats were recorded emerging or re-entering from any features associated with the site. The findings of these surveys are detailed in Report RT-MME-153229 Rev B.

The survey data was valid for a period of 12 months from the survey date. Following consultation with the Local Planning Authority, it has been agreed that an updated Preliminary Bat Roost Assessment can be undertaken to extend the validity of the bat survey data, provided the results are the same as the previous assessment.

To fulfil the above brief to assess the potential for the existing buildings on site to support roosting bats, an updated Preliminary Bat Roost Assessment was undertaken on 30th November 2021.

The preliminary assessment has revealed a number of potential high value roosting features within the building, such as, lifted/missing roof tiles, gaps underneath the ridge tiles, lifted lead flashing and gaps around the front door frame and ornamental lintel. These features were present on all elevations of the building and due to their height and location could not be fully inspected during the assessment. The main building at 129 Whiteknights Road, Reading has been identified as having no change in evidence of bats or significant changes in the bat roosting features present since the previous surveys in July – September 2020.

The single storey garage was not suitable to support roosting bats due to absence of ingress points and/or characteristics of the buildings. The garage was assessed as having negligible potential to support roosting bats.

Furthermore, there is a potential of increased lighting on site during and post-development that could negatively impact roosting, foraging and commuting bats on site and in wider area.

Following the results of the Preliminary Bat Roost Assessment, the following recommendations have been made (please refer to Chapter 6 for full recommendations):

R1 Main Building

The main building at 129 Whiteknights Road, Reading has been identified as having no change in evidence of bats or significant changes in the bat roosting features present. If the works to the building begin before May 2022, then a precautionary mitigation strategy including a supervised soft strip of bat roost features should be followed. If the works begin after May 2022 an additional precautionary bat emergence survey should take place before works begin.

R2 Garage

The garage at 129 Whiteknights Road, Reading was fully inspected, and no bat roosts were identified. This structure had no potential for roosting bats. The survey data obtained for the site is valid for 12 months from the survey date.

R3 Lighting

In accordance with best practice guidance relating to lighting and biodiversity (Miles et al, 2018; Gunnell et al, 2012), any new lighting should be carefully designed to minimise potential disturbance and fragmentation impacts on sensitive receptors, such as bat species.

R4 Habitat Enhancement

In line with the National Planning Policy Framework, the development should aim to enhance the site for bats.

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1. INTRODUCTION

1.1 PROJECT BACKGROUND

In November 2021, Hives Architects LLP commissioned Middlemarch Environmental Ltd to undertake a Preliminary Bat Roost Assessment at 129 Whiteknights Road, Reading. This assessment is required to inform a planning application associated with partial demolitions and extensions to the existing residential building.

Middlemarch Environmental Ltd has previously carried out a Preliminary Ecological Appraisal at this site. The findings of this survey are detailed in Report RT-MME-152004-01 Rev A.

In addition, Middlemarch Environmental Ltd previously undertook a Preliminary Bat Roost Assessment in July 2020 (Report RT-MME-152004-02 Rev A). As a result of the recommendations made in this report, dusk emergence and dawn re-entry bat surveys were carried out between 10th August 2020 and 8th September 2020. No bats were recorded emerging or re-entering from any features associated with the site. The findings of these surveys are detailed in Report RT-MME-153229 Rev B.

The survey data was valid for a period of 12 months from the survey date. Following consultation with the Local Planning Authority, it has been agreed that an updated Preliminary Bat Roost Assessment can be undertaken to extend the validity of the bat survey data, provided the results are the same as the previous assessment.

To fulfil the above brief to assess the potential for the existing buildings on site to support roosting bats, an updated Preliminary Bat Roost Assessment was undertaken on 30th November 2021.

All UK bat species are legally protected species and they are capable of being material considerations in the planning process. A summary of the legislation protecting bats is included within Appendix 1. This section also provides some brief information on the ecology of British bat species.

1.2 SITE DESCRIPTION AND CONTEXT

The site under consideration is a rectangular pocket of land located at 129 Whiteknights Road, Reading, Berkshire. It is centred on OS Grid Reference SU 74264 71924. The site contains a large detached residential property, a front garden with driveway and a larger rear garden to the north-east. The site covers an area of approximately 0.148 ha.

The site is bordered to the west and east by residential buildings, to the south by Whiteknights Road and to the north further residential gardens.

The majority of the site is covered by a two-storey residential building with single storey attached garage, amenity grassland with pockets of scattered trees and introduced shrubs. There were areas of hardstanding tarmac to the south of the site in a form of vehicular access to the garage and pedestrian access to the house. The rear garden is fenced off with wooden 6 ft fence.

The wider landscape is comprised of further residential buildings with large gardens to the north, west and east and patches of woodlands to the south.

1.3 DOCUMENTATION PROVIDED

The conclusions and recommendations made in this report are based on information provided by the client regarding the scope of the project. Documentation made available by the client is listed in Table 1.1.

Document Name / Drawing Number	Author
Existing and Demolition Plans / 2822 004P11	Hives Architects
Proposed Plans / 2822 005P16	Hives Architects
Existing and Proposed Elevations / 2822 003P13	Hives Architects
Existing and Proposed Street Elevations / 2807 004P11	Hives Architects
Proposed Block Plan / 2822 007P8	Hives Architects
Existing and Proposed 3D Views / 2822 006P9	Hives Architects
Front Garden Concept Plan / 865 01	Bradford-Smith

Table 1.1: Documentation Provided by Client

2. METHODOLOGY

2.1 DESK STUDY

As part of the Preliminary Ecological Appraisal (Report RT-MME-152004-01 Rev A) an ecological desk study (which included a search for records of bats) was undertaken within a 1 km radius of the site. The consultee for the desk study was Thames Valley Environmental Records Centre.

Middlemarch Environmental Ltd then assimilated and reviewed the desk study data provided by this organisation. Relevant bat data are discussed in Chapter 3. In compliance with the terms and conditions relating to its commercial use, the full desk study data are not provided within this report.

The desk study included a search for statutory nature conservation sites designated for bats within a 10 km radius of the site.

2.2 FIELD SURVEY

In line with the specifications detailed in Bat Mitigation Guidelines (English Nature, 2004) and Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016), a Preliminary Bat Roost Assessment of the building and associated garage was conducted during daylight hours. A visual assessment was undertaken to determine the presence of any Potential Roost Features (PRFs), together with a general appraisal of the suitability of the site for foraging and commuting. Table 2.1 provides examples of PRFs. Any accessible PRFs were inspected using binoculars, a torch and endoscope for evidence of possible bat presence. Buildings were surveyed externally and internally.

For reasons of health and safety, the survey was only undertaken in areas accessible from 3.5 m ladders.

For reasons of health and safety, an elevated work platform was used to access features above 3.5 m in height.

Based on the PRF's present, the survey area was assessed using the suitability classes detailed within Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016), as detailed in Table 2.2.

Example of Potential Roost Features	
<u>Externally</u>	
• Access through window panes, doors and walls; • behind peeling paintwork or lifted rendering; • behind hanging tiles; • weatherboarding; • eaves; • soffit boxes; • fascias; • lead flashing; • gaps under felt (even including those of flat roofs); • under tiles/slates; • existing bat and bird boxes; and • any gaps in brickwork or stonework permitting access into access to cavity- or rubble-filled walls.	
<u>Internally</u>	
• behind wooden panelling; • in lintels above doors and windows; • behind window shutters and curtains; • behind pictures, posters, furniture, peeling paintwork; • peeling wallpaper, lifted plaster and boarded-up windows; • inside cupboards and in chimneys accessible from fireplaces. • within attic voids: • the top of gable end or dividing walls; • the top of chimney breasts; • ridge and hip beams and other roof beams; • mortise and tenon joints; • all beams (free-hanging bats); • the junction of roof timbers, especially where ridge and hip beams meet; • behind purlins; • between tiles and the roof lining; and • under flat felt roofs.	

Table 2.1: Potential Roost Features (Adapted from Collins, 2016)

Suitability	Description
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
Negligible	Negligible habitat features on site likely to be used by roosting bats.

Table 2.2: Classification of Structures with Bat Potential (Adapted from Collins, 2016)

3. DESK STUDY

3.1 STATUTORY NATURE CONSERVATION SITES

The site is not located within 10 km of any statutory nature conservation sites designated for the presence of bats.

3.2 SPECIES RECORDS

The data search was carried out in March 2020 by Thames Valley Environmental Records Centre. Records of bat species within a 1 km radius of the survey area provided by the consultee are summarised in Table 3.1. It should be noted that the absence of records should not be taken as confirmation that a species is absent from the search area.

Species	No. of Records	Most Recent Record	Proximity of Nearest Record to Study Area	Species of Principal Importance?	Legislation
Brown long-eared bat <i>Plecotus auritus</i>	3	2018	100 m north-west	✓	ECH 4, WCA 5, WCA 6
Noctule <i>Nyctalus noctula</i>	24	2017	160 m north-west	✓	ECH 4, WCA 5, WCA 6
Pipistrelle <i>Pipistrellus</i> sp.	12	2016	160 m north-west	#	ECH 4, WCA 5, WCA 6
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	29	2017	180 m north-west	✓	ECH 4, WCA 5, WCA 6
Unidentified bat <i>Chiroptera</i> sp.	8	2017	200 m north-west	#	#
Common pipistrelle <i>Pipistrellus pipistrellus</i>	29	2018	230 m north-west	-	ECH 4, WCA 5, WCA 6
Unidentified myotis <i>Myotis</i> sp.	2	2016	240 m north-west	-	ECH 4, WCA 5, WCA 6
Daubenton's bat <i>Myotis daubentonii</i>	2	2015	360 m west	-	ECH 4, WCA 5, WCA 6
Long-eared bat <i>Plecotus</i> sp.	3	2015	410 m south-east	#	ECH 4, WCA 5, WCA 6
Natterer's bat <i>Myotis nattereri</i>	1	2016	930 m north	-	ECH 4, WCA 5, WCA 6
Serotine bat <i>Eptesicus serotinus</i>	3	2016	930 m north	-	ECH 4, WCA 5, WCA 6
Unidentified bat <i>Vespertilionidae</i> sp.	1	2014	Potentially within a 1 km radius*	#	#
Key: #: Dependent on species. ECH 4: Annex IV of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora. Animal and plant species of community interest in need of strict protection. WCA 5: Schedule 5 of Wildlife and Countryside Act 1981 (as amended). Protected animals (other than birds). WCA 6: Schedule 6 of Wildlife and Countryside Act 1981 (as amended). Animals which may not be killed or taken by certain methods. Species of Principal Importance: Species of Principal Importance for Nature Conservation in England.					

Table 3.1: Bat Species Records Within 1 km of Survey Area

3.3 PREVIOUS BAT SURVEYS

Middlemarch Environmental Ltd previously undertook a Preliminary Bat Roost Assessment in July 2020 (Report RT-MME-152004-02 Rev A). As a result of the recommendations made in this report, dusk emergence and dawn re-entry bat surveys were carried out between 10th August 2020 and 8th September 2020. Common pipistrelle, noctule, serotine and soprano pipistrelle were recorded foraging and /or commuting on site, however no bats were recorded emerging or re-entering from any features associated with the site. The findings of these surveys are detailed in Report RT-MME-153229 Rev B.

4. SURVEY RESULTS

4.1 INTRODUCTION

The Preliminary Bat Roost Assessment was conducted on 30th November 2021 by Will Rees (Senior Ecological Consultant) and Amelia Collins (Ecological Project Officer).

Weather conditions were recorded and are presented in Table 4.1.

Parameter	Conditions
Temperature (°C)	8
Cloud Cover (%)	90
Precipitation	Nil
Wind Speed (Beaufort)	F1

Table 4.1: Weather Conditions During the Preliminary Bat Roost Assessment

4.2 CONSTRAINTS

Although all areas of the loft space were accessed, it was only deemed safe to walk beneath the ridge beam and therefore, the area around the eaves could not be inspected in detail. In addition, the space between the sarking boards and roof tiles could not be inspected.

4.3 SURVEY RESULTS

4.3.1 Main Building

External Assessment

The main building at 129 Whiteknights Road was large two-storey residential brick-built detached house, built in early 1900s. The building was in relatively good state of repair and was un-occupied at the time of the survey. The building had pitched clay tiled roof and chimney. It was brick built with single glazed windows in wooden frames (Plates 4.1 and 4.2).



Plate 4.1: Front of building (south-west elevation)



Plate 4.2: Rear of building (north-east elevation)

A survey of the roof of the building was conducted from ground level. Numerous features were recorded within the roof in form of missing, broken, or lifted clay roof and ridge tiles (Plates 4.3, 4.4, 4.5, 4.6 and 4.7) on all elevations which could be utilised by bats to enter the building and potential roosting locations. Lifted lead flashing was recorded where the kitchen extension roof and main building meet (Plate 4.8). It was not possible to inspect any of these ingress holes due to the height at which they were located and as such it was not possible to establish if bats had used these features to enter a roost location at the time of surveying.



Plate 4.3: Numerous missing and lifted roof tiles (north-west elevation)



Plate 4.4: Missing and lifted roof tiles (south-east elevation)



Plate 4.5: Broken tiles on gable end (north-east elevations)



Plate 4.6: Lifted roof and ridge tiles on kitchen extension gable end



Plate 4.7: Lifted roof and ridge tiles on kitchen extension roof



Plate 4.8: Lifted lead flashing between kitchen extension roof and main building

The brickwork on the chimney was in good condition and no cracks or crevices were recorded. The lead flashing between chimney bricks and clay tiles was tightly fitted with no gaps for entry recorded. The wooden boards at the exposed eaves were generally in good condition; however, some potential access points were recorded in the form of gaps between the wooden boarding, wooden rafters and brickwork (Plates 4.9 and 4.10). No crack or crevices or missing bricks were recorded within the brickwork. A few holes were noted in the mortar, but did these did not appear to extend inwards (Plate 4.11); however, they could not be fully inspected due to the height at which they were located.



Plate 4.9: Gaps between wooden board and brickwork



4.10: Gaps between wooden board and brickwork



4.11: Missing mortar in brickwork (north-west elevation)

The previous assessment report found the wooden window frames, door frames and brickwork, had no gaps that could be utilised by bats and the single glazed windows were all in good condition. However, in the updated assessment, gaps were noted around wooden ornamental door and window frame on the front of the building (Plates 4.12 and 4.13). In addition, it was noted that the ornamental wooden lintel above the front door had degraded, and the associated lead flashing was lifted, creating gaps between the lintel and the wall (Plate 4.14). These features could be utilised by bats to enter the building and potential roosting locations. At the time of the survey no evidence of use by bats e.g. droppings, urine staining, feeding remains or scratch marks, was recorded within the features.



Plate 4.12: Gaps between wooden door/window frames and brickwork



Plate 4.13: Gap between window frame and brickwork



Plate 4.14: Gap behind wooden lintel and lifted lead flashing

Numerous features were recorded around the building which could be utilised by bats to gain entry into the building and potential roost locations. These features include:

- Lifted roof tiles;
- Missing roof tiles;
- Broken roof tiles;
- Gaps underneath the ridge tiles;
- Lifted lead flashing between kitchen extension roof and main building;
- Gaps between exposed eaves boarding and brickwork;
- Missing mortar;
- Gaps around front door and window frames; and,
- Gaps behind ornamental lintel and associated lifted lead flashing.

It was not possible to fully inspect the features due to the height at which they were located and as such it was not possible to establish if bats had used these features to enter a roost location at the time of

surveying. No evidence of roosting bats, e.g. droppings, urine staining, feeding remains or scratch marks, was recorded within the features that could be fully inspected during the survey.

Internal Assessment

The main loft space formed a large U shape, measuring approximately 2 metres high from ridge beam to floor, approximately 13 metres in length north-west to south-east (Plate 4.15) and 12 metres and 9 metres in length north-east to south-west (Plates 4.16 and 4.18). The loft void was constructed from wooden timber rafters, supported by a wooden ridge beam with wooden sarking boards (Plate 4.17). The loft was uncluttered and not used to store any personal items and was internally insulated with fibre glass. Only a small section of the floor around the loft hatch was boarded.

Wooden ridge beams and rafters were heavily cobwebbed indicating the space had not recently been used by fauna. The brick gable ends (Plate 4.18) had gaps around the edges which could be utilised as potential roosting feature by bats. The most northerly rear gable end was noted to be in a poor state with degraded mortar (Plate 4.18). The loft void had a slight draft at the time of the survey indicating that the loft space may not provide consistent temperature or a stable environmental conditions to support void dwelling bats; however, this was not significant enough to rule out the probability of roosting bats. Additionally, there was external damage to the roof tiles that has created large ingress point for bats to utilise (Plate 4.19). The remains of a wasp's nest was noted indicating there are access points into the loft void for fauna. Evidence of faunal feeding remains in the form of wing cases were noted on the floor.

During the previous assessment only a small section of the main loft void was inspected; however, during the updated assessment all the internal gable ends, chimneys and the length of the ridge beams were inspected. Whilst no evidence of bats, e.g. droppings, urine staining or scratch marks, was recorded during the internal inspection of the building, it was only deemed safe to walk beneath the ridge beam and therefore the area around the eaves could not be inspected in detail. In addition, the space between the sarking boards and roof tiles could not be inspected by the surveyor.



Plate 4.15: Main loft void with fibre glass insulation



Plate 4.16: Main loft void – heavy cobwebbing



Plate 4.17: Wooden sarking boards on wooden ridge beams



Plate 4.18: Gaps around most northerly rear gable end



4.19: Broken roof tiles and missing sarking

In addition, the loft void above the kitchen was inspected during the updated assessment. This was not inspected during the previous assessment. The space was approximately 2 metres high, 3.5 m in length and 4.5 m in width.

The loft had the same construction as the main loft void with wooden rafters, ridge beam and sarking boards (Plates 4.20 and 4.21) and fibre glass insulation on the floor. A small vent was present on the gable end providing a potential direct access into the void. The space was uncluttered and heavily cobwebbed indicating the space had not recently been used by flying fauna. Evidence of rodents was however noticed.

The length of the ridge beam and gable end was inspected and no evidence of bats, e.g. droppings, urine staining or scratch marks, was recorded during the internal inspection of the building. However, it was only deemed safe to walk beneath the ridge beam and therefore the area around the eaves could not be inspected in detail. In addition, the space between the sarking boards and roof tiles could not be inspected by the surveyor.



Plate 4.20: Loft void above kitchen extension



Plate 4.21: Loft void above kitchen extension

During further internal assessment, the spacious internal rooms with large windows provided significant levels of ambient lighting (Plate 4.22). Along the remaining floors, all rooms had large windows and were in moderate state of repair. No evidence of bats, e.g. droppings, urine staining, feeding remains or scratch marks, was recorded during the internal inspection of the building.

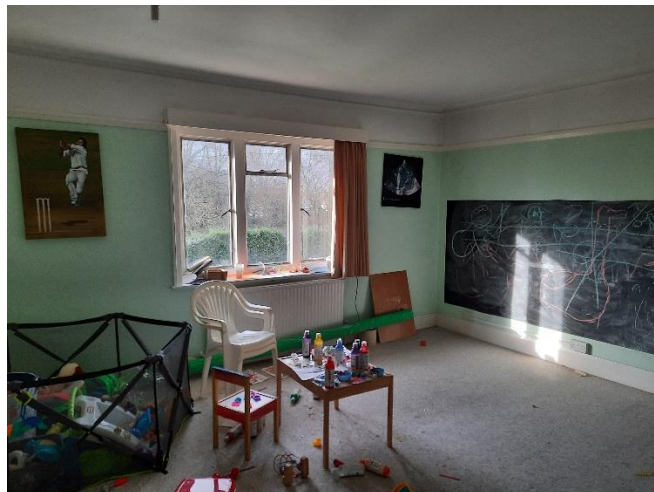


Plate 4.22: Example of internal room

4.3.2 Garage

External Assessment

The garage was single storey and in good state of repair with roofing felt flat roof which was partly covered by English ivy *Hedera helix* on the northern elevation (Plates 4.23 and 4.24). Since the previous assessment, the extent of ivy cover appeared to have been reduced. Ivy growth was not substantial to form gaps and crevices between stems and concrete blocks. Large double vehicular doors to the front and two single glazed wooden framed windows to the rear were present. There were no gaps between concrete blocks and doors and windows. The garages had no potential ingress points for bats to utilise and no evidence of bats were recorded during external inspection.



Plate 4.23: Front of garage (south-west elevation)



Plate 4.24: Rear of garage (north-east elevation)

Internal Assessment

At the time of the survey the garage was used to store personal items and gardening tools (Plate 4.25). The walls were constructed from smooth concrete. The ceiling was made of smooth wooden boards on timber beams which were fully inspected (Plate 4.26). No gaps were noted between the boards and the beams that could be used as roosting features and no evidence of bats, e.g. droppings, urine staining, feeding remains or scratch marks, was recorded during the internal inspection of the building.



Plate 4.25: Garage - internal



Plate 4.26: Garage - ceiling construction

4.4 SITE AND SURROUNDING HABITATS

The development site, which measures approximately 0.148 ha, is located within the town of Reading, Berkshire. The site contains a front garden with a driveway, and a larger rear garden. At the time of the survey the site was dominated by amenity grassland and hard standing with scattered trees and introduced shrub. These habitats provided potential foraging opportunities for bats. The trees also provided valuable commuting habitat for bats. Overall, the site was assessed as being suitable for foraging and commuting bats.

Habitats within 1 km of the site suitable for roosting, commuting and foraging include:

- Residential houses and associated gardens;
- Running water and standing waterbodies;
- Pockets of woodland;
- Churches, schools, hospitals and associated grounds; and,
- Railway lines with vegetated banks.

Whiteknight Lake and associated vegetated grounds are situated 0.4 miles to the west providing connectivity through similar residential properties and large linked gardens to the site. Similarly, Harris Garden situated

0.8 miles to the south of the site, provide foraging grounds for bats. In addition, Maiden Erlegh Local Nature Reserve and Laurel Park located 0.8 miles to the south-east also offer bats foraging grounds.

Further connecting landscape consists of Highwood Nature Reserve (1.3 miles) to the north-east, Palmer Park (1.5 miles) to the north-west, and further north River Thames, Thames Valley Park and large water bodies located 2.8 miles away.

5. DISCUSSION AND CONCLUSIONS

5.1 SUMMARY OF PROPOSALS

This assessment is required to inform a planning application associated with partial demolitions and extensions to the existing residential building. The flat roof garage and hipped roof kitchen extension are to be demolished to facilitate the construction of a ground floor extension. Extension works on the first floor of the building will extend north-eastwards and involve extensive works to the existing hipped roof.

5.2 ASSESSMENT OF BUILDINGS

The assessment of the main building at 129 Whiteknights Road resulted in the observation of multiple suitable features externally that could support roosting bats or provide access points to internal features. These features include:

- Lifted roof tiles;
- Missing roof tiles;
- Broken roof tiles;
- Gaps underneath the ridge tiles;
- Lifted lead flashing between kitchen extension roof and main building;
- Gaps between exposed eaves boarding and brickwork;
- Missing mortar;
- Gaps around front door and window frames; and,
- Gaps behind ornamental lintel and associated lifted lead flashing.

It was not possible to fully inspect the features due to the height at which they were located and as such it was not possible to establish if bats had used these features to enter a roost location at the time of surveying. No evidence of roosting bats, e.g. droppings, urine staining, feeding remains or scratch marks, was recorded within the features that could be fully inspected during the survey.

The internal assessment of the loft void identified various ingress points that could be utilised by bats such as damaged/missing roof tiles and gaps around the brick gable ends. Whilst all the internal gable ends, chimneys and the length of the ridge beams were inspected and no evidence of bats, e.g. droppings, urine staining or scratch marks, were recorded in these areas, it was only deemed safe to walk beneath the ridge beam and therefore the area around the eaves could not be inspected in detail. In addition, the space between the sarking boards and roof tiles could not be inspected by the surveyor. A draft was noted within the loft which may deter bats; however, this was not significant enough to rule out the probability of roosting bats. The main building at 129 Whiteknights Road, Reading has been identified as having no change in evidence of bats or significant changes in the bat roosting features present.

The single storey garage was not suitable to support roosting bats due to absence of ingress points and/or characteristics of the buildings. The garage was assessed as having negligible potential to support roosting bats.

5.3 POTENTIAL IMPACTS ON BATS

It was not possible to rule out the presence of roosting bats within the Main Building, which is to undergo partial demolition and extensive roof works. The main building at 129 Whiteknights Road, Reading has been identified as having no change in evidence of bats or significant changes in the bat roosting features present. If the works to the building begin before May 2022, then a precautionary mitigation strategy including a supervised soft strip of bat roost features should be followed. If the works begin after May 2022 an additional precautionary bat emergence survey should take place before works begin. The precautionary mitigation strategy is outlined in Section 6.0 below.

The site is also located in a residential setting with opportunities for foraging or commuting bats within the residential gardens. Should this be lost or if the development is to increase lighting, either during the construction or operational phase of the development, then there is potential for impacting foraging bats within the area resulting from the fragmentation of suitable habitat for bats. Any lighting left on overnight, or close to dawn and dusk, could have an impact on bats roosting and/or using the site to commute or forage. Recommendations have been made in Chapter 6.

It is understood that the vegetation within the rear garden to the main building are being retained as part of the proposed works. Therefore, there will be no loss of potential habitat for foraging and commuting bats.

6. PRECAUTIONARY MITIGATION STRATEGY

6.1 INTRODUCTION

The following section details precautionary mitigation that must be implemented on site. The main building at 129 Whiteknights Road, Reading has been identified as having no change in evidence of bats or significant changes in the bat roosting features present since the previous survey bat emergence/re-entry surveys were undertaken in September 2020. If the works to the building begin before May 2022, then a precautionary mitigation strategy including a supervised soft strip of bat roost features should be followed. If the works begin after May 2022 an additional precautionary bat emergence survey should take place before works begin.

6.2 PRECAUTIONARY MITIGATION STRATEGY

6.2.1 New Bat Roost Creation

Prior to any works being undertaken, 3 x Schwegler 2DFDP (or suitable alternative) will be installed on an appropriate mature tree within the development area. The boxes will provide bats with roosting opportunities throughout the construction period. The bat boxes will be erected at approximate angles of 120 degrees to provide a variety of climatic conditions (i.e. sun and shade at different times of the day). All bat boxes will be situated higher than 4 m from the ground to prevent any negative interference. These boxes will also serve for enhancement for bats post construction.

6.2.2 Tool Box Talk, Timings of Works and Capture

Prior to any works taking place on the building, a 'toolbox' talk by a suitably experienced ecologist will be held with the demolition team in order to ensure that the contractors are aware of the bat issues associated with the site. This 'toolbox' talk will discuss the appropriate methodologies to remove the features around the building to ensure that no harm to bats occurs.

All features with potential to support roosting bats present on the building due for removal would be removed under supervision of a licensed ecologist, including a soft strip of roof tiles, soffit boxes and hanging tiles where applicable.

If at any point a bat is discovered during the exclusion works, it will be caught by hand, placed in a cotton bag and transferred to one of the bat boxes that would have already been installed in proximity to the building (boxes on suitably sized trees are to be provided for this reason).

The works will not be undertaken when it is raining to ensure that bats do not get wet when relocated to their new roost location. The tree-mounted bat boxes are suitable for year-round use by crevice dwelling bats.

Any recovered bat droppings found during the works will be relocated to the bat boxes installed on site prior to works commencing.

In the unlikely event that a bat becomes injured, any injured bats will be immediately taken into care (as directed by the Bat Workers Manual, 2004).

Guidance from Natural England states that it is possible to transfer up to three bats in a state of torpor. The bat worker on site will in this instance reassess the site and discuss the findings with the named ecologist on the licence. This will establish if works must temporarily cease to avoid disturbance, or if an amendment to the licence is required.

If a bat is discovered unexpectedly during the works, the following steps will be taken. Works to the building will stop immediately (to prevent any bat being disturbed or harmed) and if applicable a Natural England Licence will be required. The mitigation/enhancement installed on site is appropriate for year round use and the bat worker will relocate any discovered bat using the methodologies detailed above.

6.2.3 General Measures

Lighting

No additional lighting should be installed on site (either during or post development) which will cause illumination to the bat boxes on trees.

Where lighting is required for health and safety/security reasons, it will be low level (i.e. installed at the ground level) and directional (i.e. downwards pointing and directed away from bat boxes). This will ensure that bats using the site to roost/forage/commute are not affected by illumination. Any illumination should be approved by Middlemarch Environmental Ltd to ensure no bat roosts are impacted. Further recommendations regarding lighting are provided in Section 7.

Additional Bat Emergence Survey

A precautionary bat emergence survey will take place the evening before works commence on the building, if the works begin after May 2022. Should a significant amount of bat activity be recorded, additional survey effort may be required. If a bat roost is discovered then works that have impacts associated with the bat roost features must cease until a bat licence application has been submitted and approved by Natural England.

6.3 CONCLUSION

Following consultation with the Local Planning Authority, it has been agreed that this updated Preliminary Bat Roost Assessment can be undertaken to extend the validity of the bat survey data, provided the results are the same as the previous assessment. The results have shown the buildings features have not changed significantly and that no evidence of bats has been recorded. A Precautionary Mitigation Strategy has been recommended to be followed as part of the demolition and construction process.

7. RECOMMENDATIONS

All recommendations provided in this section are based on Middlemarch Environmental Ltd's current understanding of the site proposals, correct at the time the report was compiled. Should the proposals alter, the conclusions and recommendations made in the report should be reviewed to ensure that they remain appropriate.

R1 Main Building

The main building at 129 Whiteknights Road, Reading has been identified as having no change in evidence of bats or significant changes in the bat roosting features present since the previous survey bat emergence/re-entry surveys were undertaken in September 2020. If the works to the building begin before May 2022, then a precautionary mitigation strategy including a supervised soft strip of bat roost features should be followed. If the works begin after May 2022 an additional precautionary bat emergence survey should take place before works begin.

R2 Garage

The garage at 129 Whiteknights Road, Reading were fully inspected, and no bat roosts were identified. This structure had no potential for roosting bats. The survey data obtained for the site is valid for 12 months from the survey date. If development works to the surveyed structure have not commenced within this timeframe it will be essential to update the survey effort to establish if suitable features have developed and if bats have colonised the structure in the interim. In the unlikely event that a bat is found during demolition works all works must immediately cease and a suitably qualified ecologist should be contacted.

R3 Lighting

In accordance with best practice guidance relating to lighting and biodiversity (Miles et al, 2018; Gunnell et al, 2012), any new lighting should be carefully designed to minimise potential disturbance and fragmentation impacts on sensitive receptors, such as bat species. Examples of good practice include:

- Avoiding the installation of new lighting in proximity to key ecological features, such as introduced shrubs and amenity grassland
- Using modern LED fittings rather than metal halide or sodium fittings, as modern LEDs emit negligible UV radiation.
- The use of directional lighting to reduce light spill, e.g. by installing bespoke fittings or using hoods or shields. For example, downlighting can be used to illuminate features such as footpaths whilst reducing the horizontal and vertical spill of light.
- Where the use of bollard lighting is proposed, columns should be designed to reduce horizontal light spill.
- Implementing controls to ensure lighting is only active when needed, e.g. the use of timers or motion sensors.
- Use of floor surface materials with low reflective quality. This will ensure that bats using the site and surrounding area are not affected by reflected illumination.
- For internal lights, recessed light fittings cause significantly less glare than pendant type fittings. The use of low-glare glass may also be appropriate where internal lighting has the potential to influence sensitive ecological receptors.

R4 Habitat Enhancement

In line with the National Planning Policy Framework, the development should aim to enhance the site for bats. Bat boxes should be installed to provide roosting habitat for species such as pipistrelle. In general, bats seek warm places and for this reason boxes should be located where they will receive full/partial sun, although installing boxes in a variety of orientations will provide a range of climatic conditions. Position boxes at least 4 m above ground to prevent disturbance from people and/or predators. The planting of species which attract night flying insects is encouraged as this will be of value to foraging bats, for example: evening primrose *Oenothera biennis*, goldenrod *Solidago virgaurea*, honeysuckle *Lonicera periclymenum* and fleabane *Pulicaria dysenterica*.

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The Conservation of Habitats and Species Regulations 2017.

APPENDIX 1

LEGISLATION

Bats and the places they use for shelter or protection (i.e. roosts) receive legal protection under the Conservation of Habitats and Species Regulations 2017 (Habitats Regulations 2017) and the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019 (Habitats Regulations 2019). They receive further legal protection under the Wildlife and Countryside Act (WCA) 1981, as amended. This protection means that bats, and the places they use for shelter or protection, are capable of being a material consideration in the planning process.

Regulation 41 of the Habitats Regulations 2017, states that a person commits an offence if they:

- deliberately capture, injure or kill a bat;
- deliberately disturb bats; or
- damage or destroy a bat roost (breeding site or resting place).

Disturbance of animals includes in particular any disturbance which is likely 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 to affect significantly the local distribution or abundance of the species to which they belong.

It is an offence under the Habitats Regulations 2017 for any person to have in his possession or control, to transport, to sell or exchange or to offer for sale, any live or dead bats, part of a bat or anything derived from bats, which has been unlawfully taken from the wild.

Changes have been made to parts of the Habitats Regulations 2017 so that they operate effectively from 1st January 2021. The changes are made by the Habitats Regulations 2019, which transfer functions from the European Commission to the appropriate authorities in England and Wales.

All other processes or terms in the 2017 Regulations remain unchanged and existing guidance is still relevant.

The obligations of a competent authority in the 2017 Regulations for the protection of species do not change. A competent authority is a public body, statutory undertaker, minister or department of government, or anyone holding public office.

Whilst broadly similar to the above legislation, the WCA 1981 (as amended) differs in the following ways:

- Section 9(1) of the WCA makes it an offence to *intentionally* kill, injure or take any protected species.
- Section 9(4)(a) of the WCA makes it an offence to *intentionally or recklessly** damage or destroy, or *obstruct access to*, any structure or place which a protected species uses for shelter or protection.
- Section 9(4)(b) of the WCA makes it an offence to *intentionally or recklessly** disturb any protected species *while it is occupying a structure or place which it uses for shelter or protection*.

*Reckless offences were added by the Countryside and Rights of Way (CROW) Act 2000.

As bats re-use the same roosts (breeding site or resting place) after periods of vacancy, legal opinion is that roosts are protected whether or not bats are present.

The reader should refer to the original legislation for the definitive interpretation.

The following bat species are Species of Principal Importance for Nature Conservation in England: barbastelle bat *Barbastella barbastellus*, Bechstein's bat *Myotis bechsteinii*, noctule *Nyctalus noctula*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bat *Plecotus auritus*, greater horseshoe bat *Rhinolophus ferrumequinum* and lesser horseshoe bat *Rhinolophus hipposideros*. Species of Principal Importance for Nature Conservation in England are material considerations in the planning process. The list of species is derived from Section 41 list of the Natural Environmental and Rural Communities (NERC) Act 2006.

ECOLOGY

At present, 18 species of bats are known to live within the United Kingdom, of which 17 species are confirmed as breeding. All UK bat species are classed as insectivorous, feeding on a variety of invertebrates including midges, mosquitoes, lacewings, moths, beetles and small spiders.

Bats will roost within a variety of different roosting locations, included houses, farm buildings, churches, bridges, walls, trees, culverts, caves and tunnels. At different times of the year the bats roosting requirements alter and they can have different roosting locations for maternity roosts, mating roosts and hibernation roosts. Certain bat species will also change roosts throughout the bat activity season with the bat colony using the site to roost for a few days, abandoning the roost and then returning a few days or weeks later. This change can be for a variety of reasons including climatic conditions and prey availability. Bats are known live for several years and if the climatic conditions are unfavourable at a particular roost, they may abandon it for a number of years, before returning when conditions change. Due to the matriarchal nature of bat colonies, the locations of these roosts can be passed down through the generations.

Bats usually start to come out of hibernation in March and early April (weather dependent), when they start to forage and replenish the body weight lost during the hibernation period. The female bats then start to congregate together in maternity roosts prior to giving birth and a single baby is born in June or July. The female then works hard to feed her young so that they can become independent and of a sufficient weight to survive the winter before the weather gets too cold and invertebrate activity reduces. Males generally live solitary lives, or in small groups with other males, although in some species the males can be found living with the females all year. The mating season begins in the autumn. During the winter bats hibernate in safe locations which provide relatively constant conditions, although they may venture outside to forage on warmer winter nights.