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Report prepared for: Stephen Allen

For the Site of: 3 Orchard on the Green Croxley Green Rickmansworth Herts WD3 3HS

Version:	Written by:	Checked by:	Final:
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Cherryfield Ecology has prepared this report for the named clients use only.

Ecological reports are limited in shelf life, Natural England usually expect reports for licenses to be from the most recent or current season. Therefore, should the project not proceed within 12 months of this report an updated survey should be undertaken in order to check for changes that may have occurred on site. Information is believed to be accurate at the time of survey; recommendations are made without bias based on good practice guidelines within the industry. However, species presence and ecological parameters can change over time.

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Contents

Preliminary Roost Assessment (PRA)

0.0 Non-Technical Summary

0.1 Background

The survey undertaken follows national guidelines Collins (2016) allowing for a day-time inspection and recommends further surveys if considered necessary. If a deviation from the guidelines has been made this will be detailed in the Method Section.

The following report details the findings and recommendations for the site of 3 Orchard on the Green Croxley Green Rickmansworth Herts WD3 3HS.

The client commissioned Cherryfield Ecology to undertake a PRA as the proposals include for a rear and side extension to the residential dwelling (B1). Plans have been provided (Appendix I)

0.2 Results and Findings

The site consists of a detached two-storey dwelling with an attached garage. Evidence of bat use was found on site in the form of approx. 50 bat droppings scattered across the loft void. B1 is a confirmed bat roost due to the presence of bat droppings. A small number of potential access points were also identified across the building including gaps along the ridge and around the chimney.

0.3 Impact Assessment and Recommendations

B1 – A bat roost will be lost in the development.

Full roost characterisation surveys will be required to determine species, population and the entry/exit points used (three surveys, a minimum of two weeks apart). ***Please see Section 4.3 for further details***.

The findings outlined in this report are valid for one year, after which updated surveys will be required.

Enhancements and mitigation are recommended (please see Section 4.4 for further details).

1.0 Introduction

1.1 Aim of the Survey

This report aims to inform the client of any bat issues that may be present on site and that could affect the development. It recommends for further survey when considered necessary and provides possible mitigation and enhancement should this become required.

1.2 Background Information

The client, Stephen Allen, has commissioned Cherryfield Ecology to undertake a PRA for the site of 3 Orchard on the Green Croxley Green Rickmansworth Herts WD3 3HS. Planning permission is being sought to construct a back and side extension to one residential dwelling.

This survey has checked all buildings, trees (from ground level only) or structures due to be affected by the proposals for bats, signs of bats or features known to be used by bats e.g. crevices, gaps or holes that cannot be checked for a variety of reasons.

The inspection was conducted on the 14/03/2023.

The survey can only ever provide a 'snapshot' of the site at the time of the survey and circumstances may change following this report. Health and Safety restrictions or obstructions may limit the ability to find evidence.

Biological records have been requested to give the report context and allow a study of the surrounds. The information is often sensitive and, therefore, a synopsis is provided.

The survey can be conducted year-round, however it can be limited due to bad weather and in the winter, when bats are not active, thus evidence and bats are often not found. During these periods, habitat value (likely presence) becomes more important to the assessment of the site.

All 18 species of bat common in the UK (17 known to be breeding) are fully protected under the Wildlife and Countryside Act (as amended) 1981 through inclusion in Schedule V of the Act. All bat species in the UK are also included in Schedule II of The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, which transpose Annex II of the Directive 92/43/EEC 1992 on the Conservation of Natural

Habitats and of Wild Fauna and Flora ("Habitats Directive") which defines United Kingdom protected species of animals.

Bats species are afforded further protection by the Countryside and Rights of Way Act 2000; and the Natural Environment and Rural Communities Act 2006.

This combined legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture bats.
- Deliberately disturb bats, whether at roost or not.
- Damage, destroy or obstruct access to bat roosts.
- Possess or transport bats, unless acquired legally.
- Sell, barter or exchange bats.

A bat roost is well-defined by the legislation as the 'resting place' of a bat. However, the word roost is used to describe this resting place and is generally accepted as the word describing where a bat or bats rest, feed or sleep.

2.0 Methods

The survey follows the national guidelines Collins (2016), and the following equipment is available for the inspection (it may or may not all be used):

- Torches (e.g. LED Lensar type).
- Ladders (Standard 4m telescopic surveying ladder).
- Endoscope where holes, cracks and crevices are accessible.
- Mirrors as above (extendable and movable mirror face).
- Binoculars (Pentax close focus).
- Thermometer/hygrometer.
- Camera.
- Sample bags for collecting dropping and feeding evidence (should this be found).

The assessment allows for a detailed inspection of the site looking for bats, evidence of use by bats e.g. droppings/feeding remains, and features known to be used by bats for roosting e.g. gaps, crevices and holes. Trees and buildings are assessed from ground level only and may require climbed surveys of holes, cracks and crevices.
Biological records data is ordered from the local records centre to provide context and background information. As the data is often sensitive, a synopsis is provided.

If a deviation from the guidelines has been made, the reason and justification will be explained below:

No deviation from the standard guidelines has been made for this survey.

2.1 Limitations

This survey provides a snapshot of the site at the time of the survey only. Bats are highly mobile and can turn up from time to time, unexpectedly. All care has been taken to ensure the results and recommendations are suitable to the context of the development and the information gathered on surveys.

Table 1: Roosting features (likelihood) of bat presence assessed against Collins (2016) guidelines *Source: Adapted from Collins (2016) pp 35, Table 4.1.*

Likelihood of bat presence (Habitat Value)	Features that bats can use, regardless of evidence being present.
Confirmed Bat Presence	Bats are found to be present during the survey. Evidence of bats is found to be present during the survey.
Higher likelihood of bat presence.	Pre-20th century or early 20th century construction. Agricultural buildings of traditional brick, stone or timber construction. Large and complicated roof void with unobstructed flying spaces. Large (>20 cm) roof timbers with mortice joints, cracks and holes. Entrances for bats to fly through. Poorly maintained fabric providing ready access points for bats into roofs, walls, bridges, but at the same time not too draughty and cool. Roof warmed by the sun, in particular south facing roofs. Weatherboarding and/or hanging tiles with gaps. Low level of disturbance by humans. Bridge structures, follies, aqueducts and viaducts over water and/or wet ground.
Moderate and Lower likelihood of bat presence.	Modern, well-maintained buildings or built structures that provide few opportunities for access by bats. Small, cluttered roof space. Buildings and built structures comprised primarily of prefabricated steel and sheet materials. Cool, shaded, light or draughty roof voids. Roof voids with a dense cover of cobwebs and no sections of clean ridge board. High level of regular disturbance. Highly urbanised location with few or no mature trees, parkland, woodland or wetland. High levels of external lighting.
Negligible likelihood of bat presence.	No features suitable for roosting, minor foraging or commuting.

Notes on using this table

1 The features listed here may not be indicative of use of the site by bats during winter or spring.

2 Pre-1914 buildings may present the greatest likelihood of providing roost space for bats due to their design, materials used and age. Pre-1990 buildings, especially when close to good foraging habitat, and with favoured features such as cavity walls and soffits, also have a high likelihood of providing roost sites for some bat species.

3 Post-1990 buildings are generally less likely than older buildings to house roosts; however, some modern designs provide access to suitable roosting spaces for bats. Pipistrelles, in particular, occupy modern buildings and built structures providing that there are suitable access gaps (>8mm) and provided the structure has appropriate characteristics for roosting.

3.0 Results

The following section details the results of the desk study, inspection and survey; it includes MAGIC information, biological records data and map/aerial photo information. The results detail the building, structure or tree (numbered for reference) description of any evidence found and habitat value if no evidence has been located.

3.1 Desk Study

The desk study is centred on Grid Reference – TQ068956 and Postcode – WD3 3HS.

Table 2: Weather Records

Parameter	Unit/Value
Temperature	7ºC
Cloud cover	40%
Precipitation	None
Wind	2/12

3.2 MAGIC

The following statutory sites and Natural England Protected Species (NEPS) have been located within the 1km search area (Figure 1).

Table 3: Magic search results

Receptor	Distance and Direction (m/Km)	Description
Statutory sites	~1930m northeast	Whippendell Wood (SSSI)
	~1375m southeast	Croxley Common Moor (SSSI)
	~1790m southeast	The Withey Beds (LNR)
	~1900m southwest	Rickmansworth Aquadrome (LNR)
	~1250m southeast	Croxley Common Moor (LNR)
Granted protected species licenses (bats)	~1245m northeast	Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus* and Brown Long-Eared *Plecotus auritus* (Licence 2013-6231)
	~1800m northeast	Common Pipistrelle and Soprano Pipistrelle (Licence 2018-34796)

	~1480m west	Common Pipistrelle and Soprano Pipistrelle (Licence 2018-36139)
	~765m north	Common Pipistrelle (Licence 2019-41484)
	~950m southeast	Soprano Pipistrelle (Licence 2017-27559)
	~800m northwest	Soprano Pipistrelle (Licence 2016-21708)
	~1500m north	Soprano Pipistrelle (Licence 2020-48291)
	~1530m northwest	Brown Long-Eared (Licence 2012-4632)
	~660m north	Brown Long-Eared (Licence 2010-2117)
	~1270m west	Brown Long-Eared (Licence 2010-1707)
Priority habitat	~1085m southeast	Coastal and floodplain grazing marsh
	~225m northeast	Good quality semi improved grassland
	~1285m southeast	Lowland heathland
	~590m west	Lowland fens
	~300m north	Deciduous woodland
	~165m northeast	Traditional orchard
	~1830m north east	Wood-pasture and Parkland

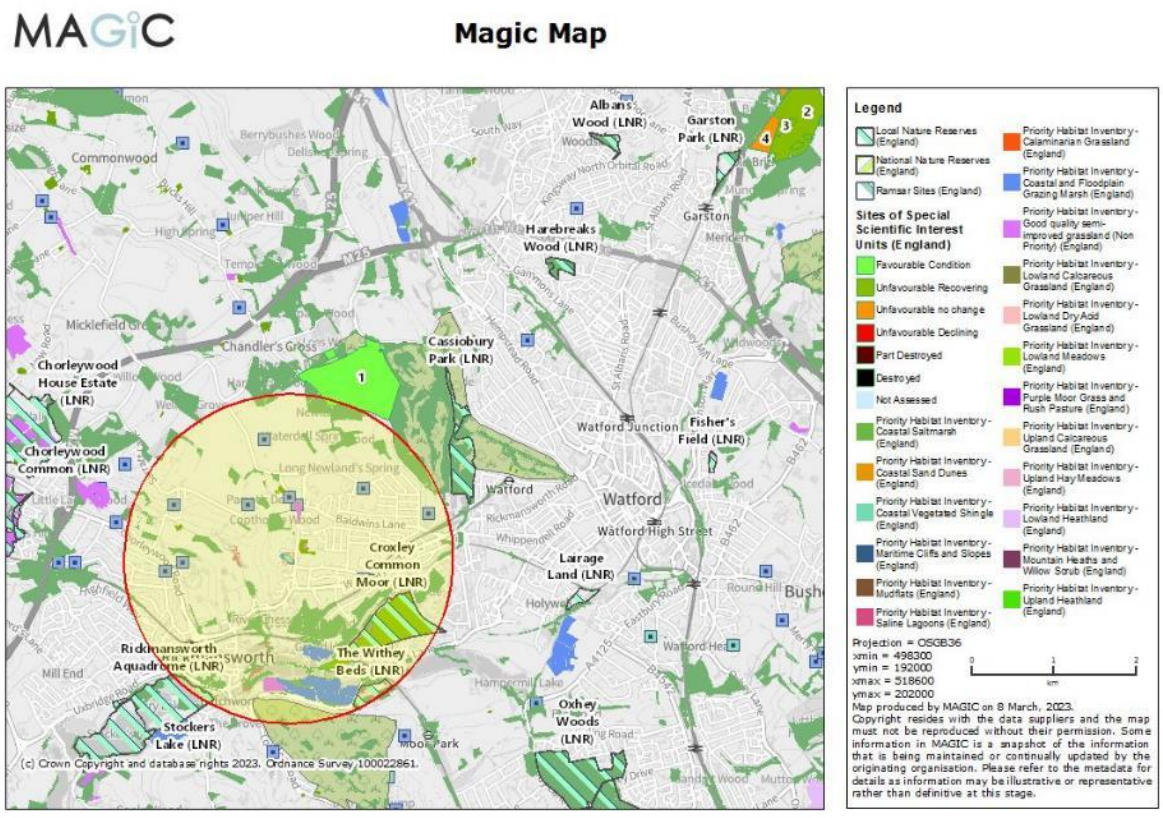

Figure 1: Magic Map Search

3.3 Biological Records Data

A 1km data search of existing records for protected species and nature reserves has been commissioned, below details the results and site context.

Biological records were obtained from Herts Environmental Record Centre (2023). A total of 183 records were provided from a total of nine confirmed bat species.

Table 4: Biological Records

Species	Number of Records	Closest record (accuracy)	Most recent record (year)
Barbastelle *Barbastella barbastellus*	0	-	-
Brown Long-Eared *Plecotus auritus*	24	0m (10km)	2014
Common Pipistrelle *Pipistrellus pipistrellus*	44	0m (2km)	2018
Daubenton's *Myotis daubentonii*	23	0m (1km)	2015
Leisler's *Nyctalus leislerii*	1	>1km (100m)	2007
Nathusius' Pipistrelle *Pipistrellus nathusii*	1	>1km (100m)	2007
Natterer's *Myotis nattererii*	12	0m (10km)	2006
Noctule *Nyctalus noctula*	16	850m (10m)	2018
Nyctalus/Eptesicus agg. *Nyctalus spp.*	3	850m (1km)	2017
Serotine *Eptesicus serotinus*	3	850m (1km)	2015
Soprano Pipistrelle *Pipistrellus pygmaeus*	27	850m (1km)	2019
Unidentified Bat *Chiroptera*	15	0m (1km)	2017
Unidentified Long-Eared *Plecotus sp.*	5	350m (100m)	2013
Unidentified Myotis *Myotis sp.*	1	>1km (100m)	1999
Unidentified Pipistrelle *Pipistrellus sp.*	6	>1km (100m)	2014
Unidentified Vesper *Vespertilionidae*	2	290m (100m)	2008
Whiskered *Myotis mystacinus*	0	-	-
Whiskered/Brandt's *Myotis mystacinus/brandtii*	0	-	-

3.4 Site Location and Surrounds

The site is located in Rickmansworth, Hertfordshire and is surrounded by medium density housing and pasture in the immediate local. Table 5 details the commuting, feeding and habitat features in a 1km radius of the site.

Table 5: Habitat features suitable for bat use in the general area.

Feature	Description
Water course	River Chess is located approx. 533.79m west.
Water bodies	A river connected to the River Chess is located approx. 773.23m west.
Woodland	Copthorne Wood is located approx. 279.77m northwest. Croxley Hall Wood is located approx. 546.96m southeast. Parrot's Dell is located approx. 651.13m northwest.
Linear e.g. hedgerows	A train track is located approx. 773.33m southeast. Garden hedgerows dominate the search area.
Pasture/arable/grassland	Croxley Green is located approx. 62.27m east. Stone's Orchard is located approx. 182.95m northeast. Baldwins Lane Recreation Ground is located approx. 502.72m northeast. Sibley Fields is located approx. 523.91 m southeast. Croxley Green is located approx. 699.36m southwest. Barton Way Play Area is located approx. 772.06m east. Rickmansworth Park is located approx. 857.14m southwest. Amenity fields in the form of playing fields are found throughout the search area.
Other	n/a

3.5 Building, Tree or Other Structure

This section details the structures reference and description (see Figure 12 for Site Plan).

Building/tree/structure reference – B1 (Main Building)

3.5.1 Description

3.5.2 General

The site consists of a detached dwelling (B1) with associated gardens surrounded by low-density residential housing.

Table 6: Building/Tree/Structure description(s)

Building/Tree/Structure Number	Description
B1	**External** B1 is a large, detached, two-storey dwelling. The building has a Dutch gable roof structure with a catslide section, two large, hipped dormers and a cross Dutch hip to the front. A bay window with a hipped roof is found to the east and a large conservatory to the rear. To the west B1 has an attached double garage, with a hip and valley roof structure. The building is brick built, with clay composite roof tiles. B1 has a single brick, built chimney with wooden soffit boxes and plastic rainwater goods.  Figure 2: Front (northern) elevation of B1  Figure 3: Eastern side elevation of B1

Figure 4: Rear elevation of B1

Figure 5: Western side elevation of B1 (garage)

Internal

Internally B1 has one large, continuous loft void which has a modern beam structure. The roof is lined with a bitumen felt and is boarded in the centre with insulation found at the ends and across the dormer sections. The loft contains the water tank and associated infrastructure.

The loft spaces within the garages were not accessible.

Figure 6: Internal loft void (eastern end)

Figure 7: Internal loft void (western end)

3.6 Bats, Evidence or Likelihood of Bat Presence

The following table details the results of the survey.

Table 7: Bats, evidence or likelihood of bats being present.

Bats found	No bats were found at the time of the survey.
Evidence of bat use	Evidence of bat use was found on site in the form of approx. 50 bat droppings scattered across the loft void floor and surfaces, predominantly beneath the ridge (see figures 8 and 9).  Figure 8: Example of bat droppings found (eastern end)  Figure 9: Example of droppings found (western end)
Potential for bat use	Level of likelihood of presence – B1 - Confirmed

B1 is a confirmed bat roost due to the presence of bat droppings. A small number of potential access points were also identified across the building including gaps in roof tiles around the chimney and along the ridge of the building, and via a hole in the brickwork (see figures 10 and 11).

Figure 10: Example of small gaps along ridge where mortar is missing

Figure 11: Example of loose tiles around chimney

3.7 Supplementary Observations

There were no other protected species found at the time of the survey.

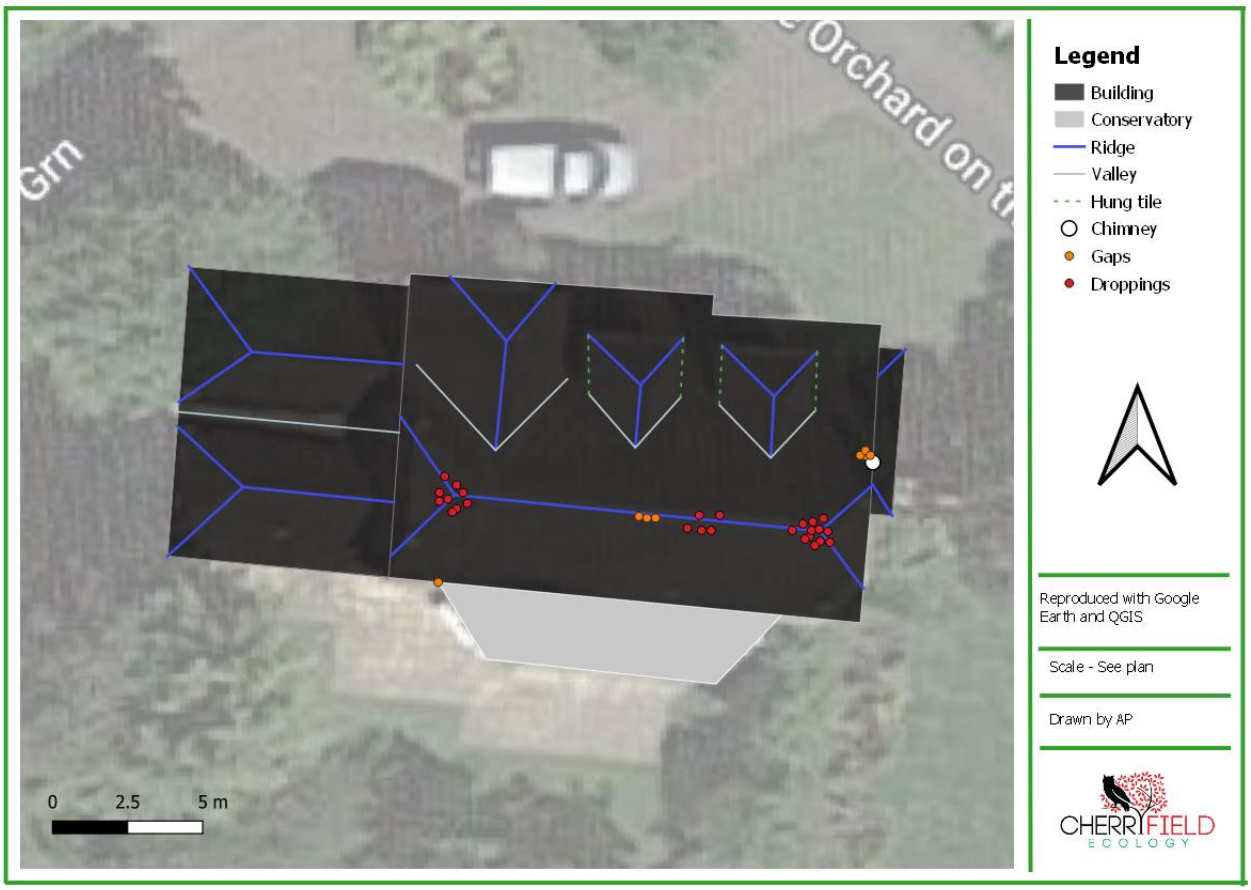

Figure 12: Site Plan

4.0 Conclusions, Discussion and Recommendations

The following section details the conclusions, discussion, potential impacts and recommendations in the context of the proposed works.

Building/tree/structure reference – B1 (Main Building)

4.1 Conclusion and Discussion

The proposals include for a rear and side extension to the residential dwelling (B1). The site consists of a detached two-storey dwelling with an attached garage. Evidence of bat use was found on site in the form of approx. 50 bat droppings scattered across the loft void. B1 is a confirmed bat roost due to the presence of bat droppings. A small number of potential access points were also identified across the building including gaps along the ridge and around the chimney.

4.2 Potential Impact

Impact assessments must be proportionate to the scale of the development (CIEEM, 2018) and the following details a proportionate impact assessment based on current information.

Table 8: Impact Assessment.

Impact	A bat roost will be lost in the development.
Characterisation of unmitigated impact on the feature	A bat roost will be destroyed when the buildings are demolished resulting in a low-level loss/impact at a local level.
Effect without mitigation	Without mitigation individual bats could be killed, injured or trapped during the works.
Mitigation and Enhancement	See Table 9 and 10
Significance of effects of residual impacts (after mitigation)	If lost roosts are replaced by bat boxes, the effects would be negligible.

4.3 Recommendations

B1 – **Full roost characterisation surveys** will be required to determine species, population and the entry/exit points used (three surveys, a minimum of two weeks apart).

A total of four surveyors to cover B1 will be required. These surveys must be undertaken within the May to September window (with September considered sub-optimal). Two of these surveys will need to be undertaken during the optimal timeframe of mid-May to August.

The findings outlined in this report are valid for one year, after which updated surveys will be required.

Enhancements and mitigation are recommended (please see Section 4.4 for further details).

4.4 Recommended Mitigation and Enhancements

The following table details the recommended mitigation if bats are found following further surveys (Table 9).

Table 9: Proposed mitigation and compensation if bats are found following further survey.

Work	Specification
General Information	No development will occur until bat surveys consistent with the Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition) (Collins et al. 2016) have been undertaken in the appropriate survey season, May to September (Mid-May to August optimal). The Three Tests to be answered before planning can be granted (NE, 2017): *Test 1:* Regulation 53(2)(e) states: a licence can be granted for the purposes of "preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment". Test 1 can be achieved via the 'imperative reasons of overriding public interest'. Although not for the ecologist to determine the planning officer will on grant of consent.

	Test 2: Regulation 53(9)(a) states: the appropriate authority shall not grant a licence unless they are satisfied "that there is no satisfactory alternative" Test 2 would be achieved on the grant of consent as no other sites have been considered for the development. *Test 3:* Regulation 53(9) (b) states: the appropriate authority shall not grant a licence unless they are satisfied "that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range." Test 3 will be achieved once full emergence/re-entry surveys are conducted and full mitigation appropriate to species and population has been designed and implemented via an NEPS licence issued from the statutory authority (Natural England), if this becomes necessary following a dusk and pre-dawn survey.
Mitigation	Based on Mitchell – Jones, (2004), ***subject to change following surveys.*** Under license demolition of suitable bat roosting features e.g. roof tiles / ridge tiles etc. will require the supervision of a bat licensed ecologist. The suitable bat roosting features e.g. roof tiles / ridge tiles. will be stripped by hand only. All areas across the roof/wall tops/weatherboarding etc. will be checked for bats i.e. endoscope (where possible) and via destructive search. If bats are found, these will be removed by hand (Ecologist only) and placed in bat boxes that will be in place before works begin. Bat boxes will be installed. These will be no less than 3m above ground level and away from any neighbouring ledge to prevent local cats predating on bats using the boxes. A minimum of one Chillon Woodstone bat box(es) or similar boxes (Figure 13) will be hung on the trees at a minimum of 3m from ground level and face south/southwesterly. These boxes are known to be used by crevice and void dwelling species.  Figure 13: Chillon Woodstone Bat Box (British-made)

	Alternatively, bat tubes can also be built into the building (Figure 14). These require no maintenance, can be installed on a gable end/under an eave, no less than 3m above ground level, face south or north and can be faced in any material to provide an aesthetic matching the reminding building.  Figure 14: Example of bat tube Commuting bats maybe using the grounds and surrounds – therefore, any tree, hedges or linear feature should be retained were possible.
Roof and Tile Linings	Bitumen Felt - When a bat roost is present and being mitigated/compensated we only recommend this type of linear for the tiles/roof covering. There is no reason that building regulations will not allow a traditional 'cold roof' and, therefore, we recommend this as the best design for bats in any project where bats are able to access the roof/loft or hung tile/weather boarding etc. The reasoning for this is twofold; firstly, bats can damage the Modern Roofing Membrane (MRM) meaning that the MRM will become useless allowing water to pass through from above and, secondly, bats will become trapped in the fibres and die from dehydration and starvation. **However, Natural England will accept an MRM being used in a bat roost under the following circumstances -** **The MRM must have passed the testing regime set out in Essah *et al* (2020) and a certificate must be provided as proof of this. Assuming the certificate is provided with the license application, NE will issue/register the site.** **It is for the client to provide the certificate to the Ecologist applying for the license.**

Lighting	Any lighting near or shining onto any trees, especially those with bat boxes in or commuting routes shown to be present at further survey stage, will be designed to minimise the impact it has on potential bat roosting and commuting. Lighting will be in line with the BCT lighting guidelines (Bats and Lighting in the UK (Bat Conservation Trust, 2018) *https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/* This lighting were possible will be of low level, be on downward deflectors and be on PIR sensors. Using LED directional lighting can also be a way of minimising the light spill affecting the habitat. No up-lighting should be used. Light spill must be minimized to as low a lux as possible. This is because moonlight is 0.3lux, any lighting currently present on site will exceed this, thus making it impossible to achieve a lux on site of less than 1lux. This will ensure that the roosting and commuting resources that the bats are likely to be using is maintained.
Timing	Once the NEPS licence is obtained, works can occur during the designated timeframe; it is best to avoid the maternity (mid-May to August) and hibernation (December to March) seasons. It is not always necessary if the roost can be shown to be a day roost of common species. Works will be timed in order to take advantage of mild weather conditions. Several consecutive nights with temperatures no lower than 7°C to avoid disturbing potentially hibernating bats. Ideally, the demolition will occur when bats are active and can be moved to alternative roosts in the area e.g. Autumn when bats are moving away from summer roosts to mating roosts.

The local planning authority have a duty to impose enhancements. The following table details the affordable and simple enhancements suitable for the site (Table 10).

Table 10: Enhancements to allow a net gain for protected species.

Work	Specification
Enhancements to provide a net gain as per the LPA's duty.	A minimum of one Chillon Woodstone bat boxes or similar boxes (Figure 15) will be hung on the trees at a minimum of 3m from ground level and face south/southwesterly. These boxes are known to be used by crevice and void dwelling species.  Figure 15: Chillon Woodstone Bat Box (British-made) Alternatively, bat tubes can also be built into the building (Figure 16); these require no maintenance and can be hidden by facing the tube with the cladding/brick etc. for aesthetics.  Figure 16: Example of bat tube

5.0 References

CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, September 2018. Chartered Institute of Ecology and Environmental Management, Winchester, online at https://www.cieem.net/data/files/ECIA%20Guidelines.pdf

Collins, J. (ed), (2016), Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition, BCT, London

Google Earth, (2017), Located on site postcode, online

MAGIC, (2017): Magic maps, NEPS licences and designated sites, online http://www.magic.gov.uk/Login.aspx?ReturnUrl=%2fMagicMap.aspx, accessed as report date.

Mitchell-Jones, A.J. (2004), Bat Mitigation Guidelines, English Nature, Peterborough

Records: Herts Environmental Record Centre (2023)

Appendix I – Site Plans

Existing Site Plan (Noades Architects, 2023)

Proposed Site Plan (Noades Architects, 2022)