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Inspection and Assessment in Relation to Bats and Birds

April 2020

Lovely Hall
Lovely Hall Lane
Blackburn
BB1 9EQ

National Grid Ref: SD 6783 3351

Document Title	Inspection & Assessment in Relation to Bats & Breeding Birds
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Executive Summary

As part of a planning application regarding Lovely Hall, Lovely Hall Lane, a daytime inspection and assessment in relation to bats and breeding birds was undertaken by Tyrer Ecological Consultants Ltd during March 2020 and commissioned by PPY Design Ltd on behalf of their client. It is understood that proposals entail the re-roofing of the property to address remedial / maintenance issues which in turn will restore the building into a more favourable and habitable condition (Figure 1).

The following key ecological features and associated recommendations have been identified:

Bats: The inspection of Lovely Hall revealed a significant number of Potential Roost Features (PRFs) to all aspects of the property, notably gaps between roof tiles, at roof verge, ridge tiles and at wall plate level beneath the open eaves. Additionally, evidence of bats was found. The abundance of PRFs combined with evidence of bat use collectively result in Lovely Hall being categorised to possess 'High' bat roost suitability, in line with existing Bat Conservation Trust (BCT) guidelines. *Based upon this categorisation, dusk and/or dawn surveys are required in order to establish the level of bat value at the site and evaluate whether a European Protected Species Mitigation Licence (EPSML) will be required (see section 8.0).*

Breeding Birds: Opportunities are present to various aspects of the property that could be used by common bird species, and evidence of historic use is noted at wall plate level beneath the eaves. *It will therefore be recommended that re-roofing operations are undertaken outside the nesting season (March-August inclusive), unless it can be conclusively demonstrated by a competent ecologist that nesting birds are absent.*

Biodiversity Net Gain: biodiversity enhancement measures are recommended within Appendix II which includes enhancement for nesting birds.

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1.0 Introduction & Reason for Survey

1.1 As part of a planning application regarding a Grade II listed property, Lovely Hall, Lovely Hall Lane, a daytime inspection and assessment in relation to bats and breeding birds was undertaken by Tyrer Ecological Consultants Ltd during March 2020. The survey was commissioned by PPY Design Ltd on behalf of their client; It is understood that proposals entail the re-roofing of the property to address remedial / maintenance issues which in turn will restore the building into a more favourable and habitable condition (Figure 1).

1.2 As part of the Local Authority's Planning Policies ecological surveys are generally required, particularly where a specially protected species is or may be present and could be affected by the proposals for which the application seeks consent.

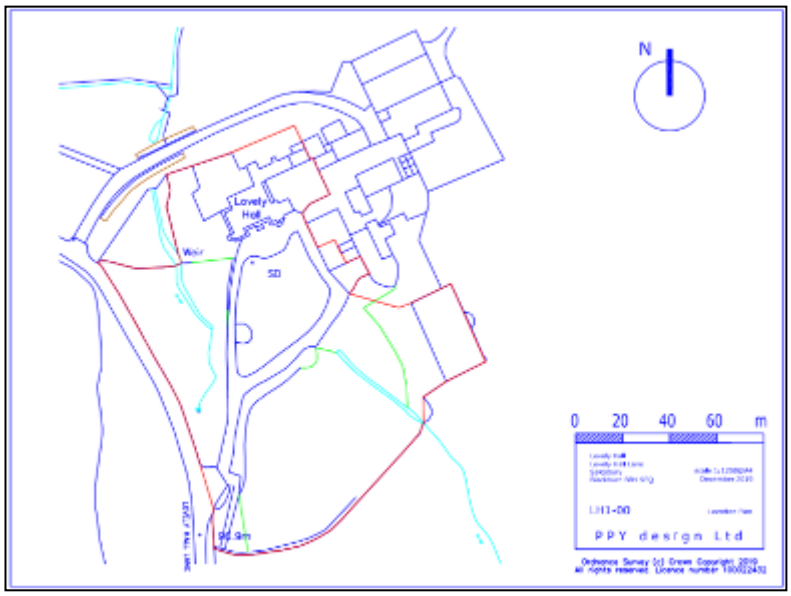

Figure 1: Location plan (©PPY Design Ltd)

1.3 The aim of the inspection was to ascertain if the building is of value to bats and breeding birds; if found to be suitable for bats or evidence of use was located then more detailed surveys would be recommended i.e. dusk/dawn emergence/re-entry surveys during the main active season of bats which is May – August. If bat/s or their roost/place of rest/shelter is subsequently affected by the work, then a European Protected Species Mitigation Licence (EPSML) would be required to proceed with the development.

1.4 The optimum time to investigate buildings for evidence of a bat roost is May – August, however that is not to say they cannot be inspected and assessed outside of that time and frequently the results can be conclusive, which can save time and expense for planning applicants but it should be borne in mind that equally the inspection can be inconclusive.

1.5 In addition to bats the site was assessed for its potential to offer nesting opportunities for birds; if the survey results indicate that breeding birds may be affected by the proposals then recommendations would be made accordingly

1.6 Protected species not included within this ecological assessment were omitted due to factors including: the absence of suitable habitats and / or distributional aspects negating the necessity to survey for them and / or the proposed works were not considered to negatively impact the species or encroach on areas where the species

may be present; in this instance, this includes Great Crested Newt (*Triturus cristatus*). Although waterbodies exist within the contiguous landscape and the site itself, the proposed work will not impact the waterbodies or extend beyond the current footprint of the existing structure.

1.7 This report also aims to identify a series of enhancement opportunities for biodiversity in line with national and local planning policy, alongside '*Biodiversity Net Gain: Good practice principles for development'* (CIEEM *et al*, 2019). Recommendations have been made within section 9.0 and Appendix II.

2.0 Legislation & Policy

2.1 All British bats and their **roosts are afforded protection under the 1981 Wildlife & Countryside Act (as amended) and are listed in Schedule 2 of the Conservation of Habitats & Species Regulations 2017 (as amended). When dealing with cases where a European Protected Species (all UK bats) may be affected, a planning authority is a competent authority within the meaning of the Regulation 7 of the 2017 Regulations and therefore has a statutory duty to have due regard to the provisions of the Regulations in the exercise of its functions.

2.2 Use of Buildings by Bats

a) Summer breeding roost.
b) Hibernation.
c) Transitional or temporary roost.

Roost selection is often closely correlated to suitable foraging habitat within a reasonable commuting distance from the roost and different sites are used depending upon insect densities and abundance, climatic conditions can also affect their ability to successfully forage. All British bats are insectivorous.

** The term roost is generically referred to as a place that bat/s use for the any of the above reasons, however it should be noted that under the Conservation of Habitats & Species Regulations 2017 (Regulation 41) the term roost is not used but refers to "*a breeding site or resting place of such an animal"* and is afforded legal protection. The roost, breeding site or resting place of bats, which ever terminology is used is legally protected whether or not bats are in occupation.

2.3 All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependant young are protected under the Wildlife & Countryside Act 1981 (as amended). Birds listed on Schedule 1 e.g. Barn owls (*Tyto alba*) are afforded a greater level of protection. Where nesting birds are present then work should be timed outside of the nesting season (March – August) so as to avoid disturbance.

Policy

2.4 The National Planning Policy Framework (NPPF) has replaced the existing Planning Policy Guidelines. (PPG's) In relation to wildlife PPG 9 was one of the documents to which Planning Authorities referred to, particularly where a specially protected species is or may be present and will be affected by a development for which a Planning application seeks consent. The aims of the NPPF in relation to species and habitats are that it places a clear responsibility on Local Planning Authorities to conserve and enhance biodiversity and to encourage on the consideration that should be given to Protected Species where they may be affected by development. The Office of the Deputy Prime Minister (ODPM) Circular 06/2005 provides administrative guidance on the application of the law in relation to planning and nature conservation.

This is supported by a guide to good practice entitled 'Planning for Biodiversity and Geological Conservation: Building in Biodiversity' in which paragraphs 5.34 and 5.35 identify that species such as bats are highly dependant upon built structures for survival and that roosts can be easily incorporated into existing and new developments/conversions to benefit these species.

When determining planning applications, Local Planning Authorities should aim to conserve biodiversity by applying the following principles:

"If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused."

2.5 Further to mitigating and compensating for the loss of biodiversity, LPAs should also aim to enhance existing biodiversity and provide clear and measurable net gains. Paragraph 174 of the NPPF states the following:

"*To protect and enhance biodiversity and geodiversity, plans should promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.*"

2.6 The policies contained within the NPPF are echoed within part 3 of Blackburn with Darwen's Core Strategy (2011) which states that:

"*The unique landscape setting will have been preserved and its upland areas in ways which promote biodiversity and protect important habitats. This will have been complemented by projects enhancing environmental quality within the built-up areas.*"

2.7 Furthermore, in the Blackburn with Darwen local plan part 2, policy 9.8 states:

"*Development likely to damage or destroy habitats or species of local importance will not be permitted unless the harm caused is outweighed by other planning considerations and an appropriate mitigation strategy can be secured."*

2.8 Guidance for Local Authorities: Extract from Office of the Deputy Prime Minster: Circular 06/2005

"*It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision."*

3.0 Protected Species in Lancashire

3.1 Up to eleven bat species have been recorded in Lancashire, most of which use built structures, notably occupied residential properties for roosting. The most frequently encountered species is the common pipistrelle bat (*Pipistrellus pipistrellus*); its abundant status in Lancashire is mirrored throughout the UK.

3.2 The number of breeding Barn owls (*Tyto alba*) within rural Lancashire is moderately high across areas of countryside where suitable environs exist; they are constantly under threat from loss of habitat and nesting opportunities.

4.0 Survey Methods

4.1 BCT Survey Good Practice Survey Guidelines 3rd edition (2016) state:-

"*The guidance should be interpreted and adapted on a case-by-case basis, according to the expert judgement of those involved. There is no substitute for knowledge and experience in survey planning, methodology and interpretation of findings, and these guidelines are intended to support these. Where examples are given they are descriptive rather than prescriptive."*

Desk study

4.2 Prior to a site visit a desktop study was conducted using online resources to obtain information pertaining to any sites afforded statutory (e.g. SSSI) and non-statutory (e.g. LWS) designations within 3.0km of the site boundary. To do so, the Multi Agency Geographic Information for the Countryside (MAGIC – provided by Defra) was accessed to gather such information; this particular interactive mapping service was also used to locate any locally granted European Protected Species Mitigation Licenses (EPSML) to further inform conclusions concerning such species in the context of the study site and its proposed development.

4.3 Satellite imagery was reviewed using sources such as Google Earth (© 2019/20) to determine the nature of adjoining and extending habitats; such information aids in the understanding of how the site might interact with its surroundings ecologically and its value in that context, and how the development may impact at a wider scale.

4.4 Whilst a data search of localised bat records from the relevant Local Records Centre (LRC) was not sourced, a sufficient level of information on which to establish the potential use of the site by bats could be gathered from the daytime site visit.

The UK Guidelines for Assessing and Using Biodiversity Data (CIEEM, 2016) state:

"Where the development site is limited to a single building or is otherwise very small and comprises structures of low potential value for bats, data searches may be of limited value in terms of the information they can provide".

Furthermore, taking into consideration the nature of the immediate habitat bat species that are likely to be present can be anticipated.

Field Survey

4.5 The daytime survey was conducted on 19th March 2020 when the building to be re roofed was inspected for potential places that may be of value to bats and to determine if evidence of use was present. The loft space of the structure is divided into multiple interconnecting sections; where possible all accessible areas were inspected with a high-powered torch for signs of use by bats which can include droppings or prey remains. A full external assessment was achieved in accompaniment to this internal appraisal whereby all external facets were inspected for viable ingress/egress opportunities for loft or crevice-dwelling bats. The building was consequently assessed for its suitability for bats in line with the previously mentioned Bat Conservation Trust 'Good Practice Guidelines'

4.6 The survey was conducted at a time when bats are nearing the completion of their hibernation period, though still outside their main active season (May-August inclusive), by the following surveyors:

Table 1: Surveyor credentials

Name	Description
Kylee Wilding BA.	Principal ecologist and holder of a Class 2 Natural England Bat License, Barn Owl Survey Class license and Natural Resources Wales Bat License.
Jonathan Pescod BSc. MRes.	Junior ecologist with two years' experience conducting a variety of survey types.

4.7 The criteria for roost assessment is based upon the Bat Conservation Trust 'Bat Surveys: Good Practice Guidelines' 3rd edition (2016) (see Figure 2).

Table 4.1 Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement.

Suitability	Description Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
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[a] 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[b]). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.[c]	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions[a] 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).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree 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[a] and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

[a] For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.
[b] Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten *et al.*, 2015). This phenomenon requires some research in the UK but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in large buildings in highly urbanised environments.
[c] This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

Figure 2: BCT guidelines extract

4.8 The results, conclusions and recommendations are based on multiple factors including:

- Practical experience of surveyor
- Knowledge of bat/bird species relevant to the site location and geographical range
- Nature of the immediate and surrounding habitat in relation to foraging/hunting opportunities
- Condition of the building
- Presence/absence of a loft space
- Presence/absence of roost/nesting potential
- Value of roost/nesting potential – if present

4.9 An assessment of the building in relation to breeding birds was conducted in tandem with the investigation for bats, when commencing their breeding season and nesting / territorial behaviour is often observed (March-August inclusive). Both interior and exterior elevations of the structure were inspected for historic signs of birds that show a high dependency upon built structures, many of which are in a state of decline. These might include the following species for example:

- **Starling (*Sturnus vulgaris*):** Birds of Conservation Concern (BoCC) red status
- **House sparrow (*Passer domesticus*):** BoCC red status
- **House martin (*Delichon urbica*):** BoCC amber status
- **Swift (*Apus apus*):** BoCC amber status

4.10 Additional to the capacity to support common species of bird for breeding purposes, the application site was also subject to an assessment for its ability to support particularly notable species. This includes specially protected species such as Barn owl (*Tyto alba*), protected under Schedule 1 of the Wildlife & Countryside Act (1981) (as amended).

5.0 Limitations

5.1 Due to the number of both interconnecting and individual loft areas, some of which were inaccessible due to blocked hatches and/or unsafe access routes. Notwithstanding this, the majority of the loft spaces could be inspected during the survey, and it can be reasonably construed that the areas accessed were representative of the loft space as a whole.

5.2 It is considered that there are no significant constraints associated with the inspection and assessment of the survey area that would otherwise hinder the attainment of ecological data.

6.0 Desk Study Results

6.1 The proposed development site is located approximately 1.4km North-West of the centre of Wilpshire; immediate habitat consists primarily of agricultural arable land, coupled with woodland belts. A large proportion of agricultural fields are delineated by areas of hedgerow, scattered trees and ditches (Figure 3).

6.2 The contiguous landscape to all aspects continues to similar nature to that of the immediate habitat with further favourable environs including a series of small waterways feeding into the River Ribble 2.3km to the North, accompanied by areas of extending ancient or semi-natural woodland, notably the extensive Old Park Wood approximately 2.3km to the West.

These previously identified habitats that occur in proximity to the survey area can be considered as being of high ecological value for many of the species for which the survey was undertaken (i.e. bats and breeding birds), subject to them being present in the locality. Where good quality habitat is present close to buildings then the percentage use of those buildings, by bats/birds increases given that roost/nest opportunities are available and vice versa.

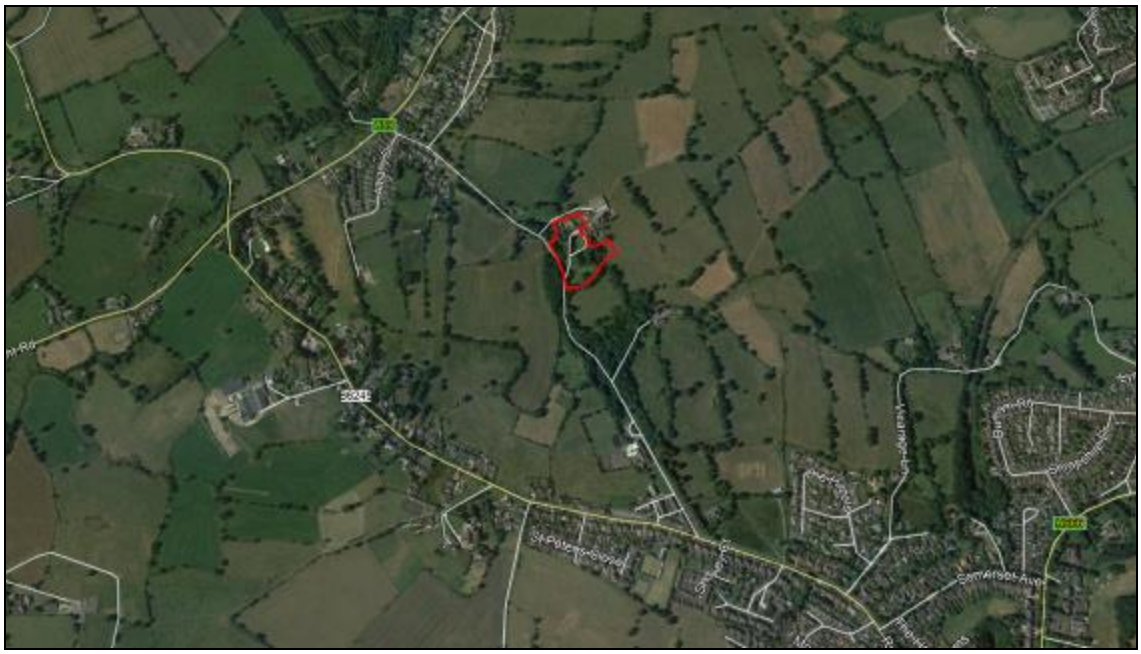

Figure 3: Position of the proposed works site within the contiguous landscape

6.3 An online search of Magic Maps revealed no European Protected Species Mitigation Licences (EPSMLs) within a 2.0km radius of the application site (Figure 4). However it is worth noting that EPSMLs pertaining to Whiskered bats (*Myotis mystacinus*), Common pipistrelle (*Pipistrellus pipistrellus*), and Brown Long-eared (*Plecotus auritus*) were granted just outside of this search radius.

6.4 The application site lies outside of the impact zone for any statutorily designated site.

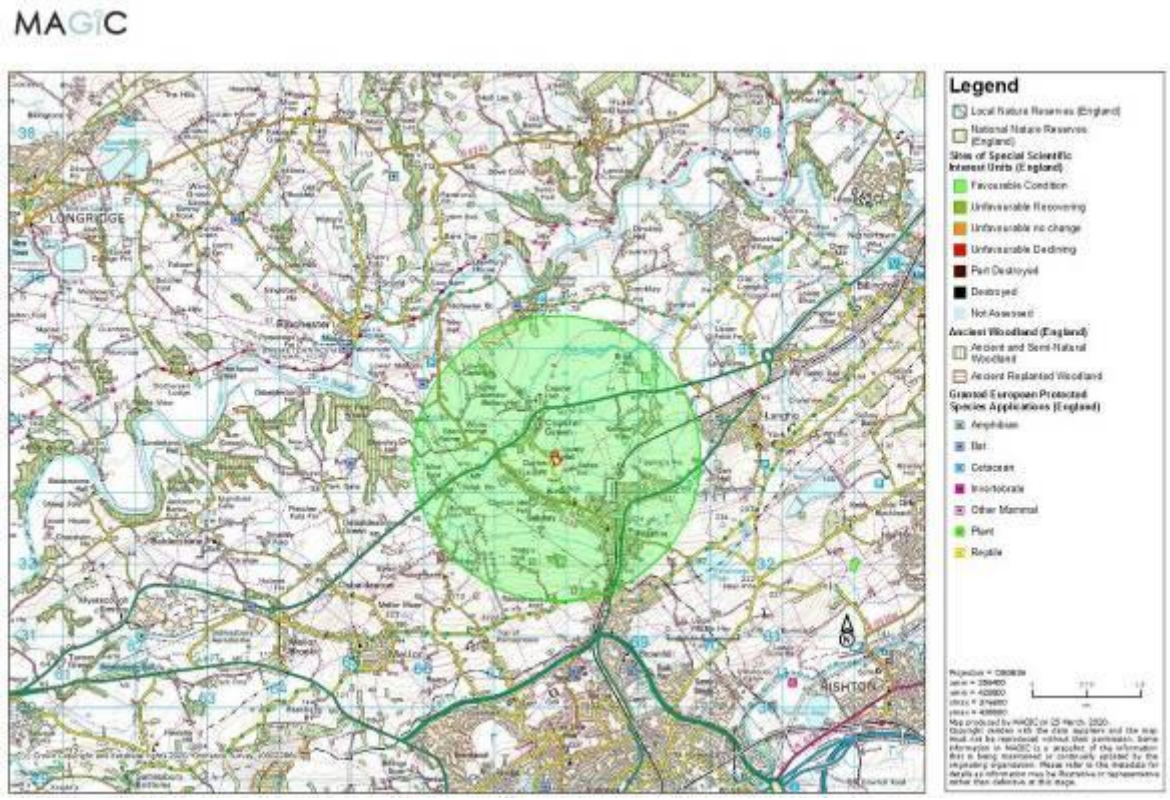

Figure 4: MAGIC Map desk-top results

7.0 Field Study Results

Bats

7.1 Lovely Hall is extensive in structure and is comprised of a stone-built property with a stone-tiled, multi-pitch roof and latter extensions to the north east. It is understood that the house was built c1600 and altered 1735 and 1874 with numerous architectural features incorporating parapets, facades and urns. Lovely Hall is set within nearly four acres of grounds with lawns, variety of trees, ornamental streams and ponds; the site further incorporates a detached double garage, annex, store and stone barn, however, these areas are understood not to be affected by the proposed scheme of remedial works. The property consists of a two-storey, currently occupied dwelling which is presently undergoing a scheme of renovation; on the day of the survey it is noted to be in a relatively reasonable aesthetic condition with the exception of the proposed roof replacement work required to restore the property to a more habitable condition in line with modern energy efficient standards.

7.2 The internal inspection of the loft space found it to be divided into multiple, mostly interconnecting sections, all varying in size (Figure 5). The conditions of the loft areas differed, however, were mostly found to be heavily cobwebbed with no signs of recent disturbance to suggest free hanging bats; furthermore, a number of areas were significantly illuminated due to roof windows and clear glass hatches which provide light penetration to the second storey.

7.3 Therefore, due to these reasons and the varied character of the loft spaces, some areas are identified to be of suitability to loft dwelling bats such as Brown long-eared (*Plecotus auritus*), a species that prefers warm, unrestrictive, darkened and non-draughty loft spaces which allow free flight. During the investigation, despite the immediate habitat being considered as offering potential for this species specific foraging requirements, no evidence of bat droppings were noted which, if loft dwelling bats have occupied the space, would be apparent. This however, does not necessarily discount the building for purposes other than breeding but based on the inspection such use appears to be absent.

7.4 It is noted that approximately 50% of the underside of the roof is mostly bare slate with a deteriorating lime mortar application, however, a traditional bitumen underfelt is observed to the remainder 50%; where present such linings will significantly improve the probability of occupancy by crevice-dwelling species of bat such as the Common pipistrelle (*Pipistrellus pipistrellus*), whereby bats are able to roost between roofing material and underfelt provided external access exists. Furthermore, six bat droppings attributed to the Pipistrelle bat (*Pipistrellus* sp.) were identified within the south west aspect of the property confirming use of the property by bats.

Within the later extended sections to north east loft spaces are absent and the interior open to the ridge with the incorporation of a vaulted ceiling.

NB: The breeding roosts of pipistrelle bats are proportionally higher in occupied residential dwellings were the warm, dry conditions favour the requirements of a maternity colony, but other structures are also used, especially for hibernation or by male bats which do not need the same conditions as a maternity colony.

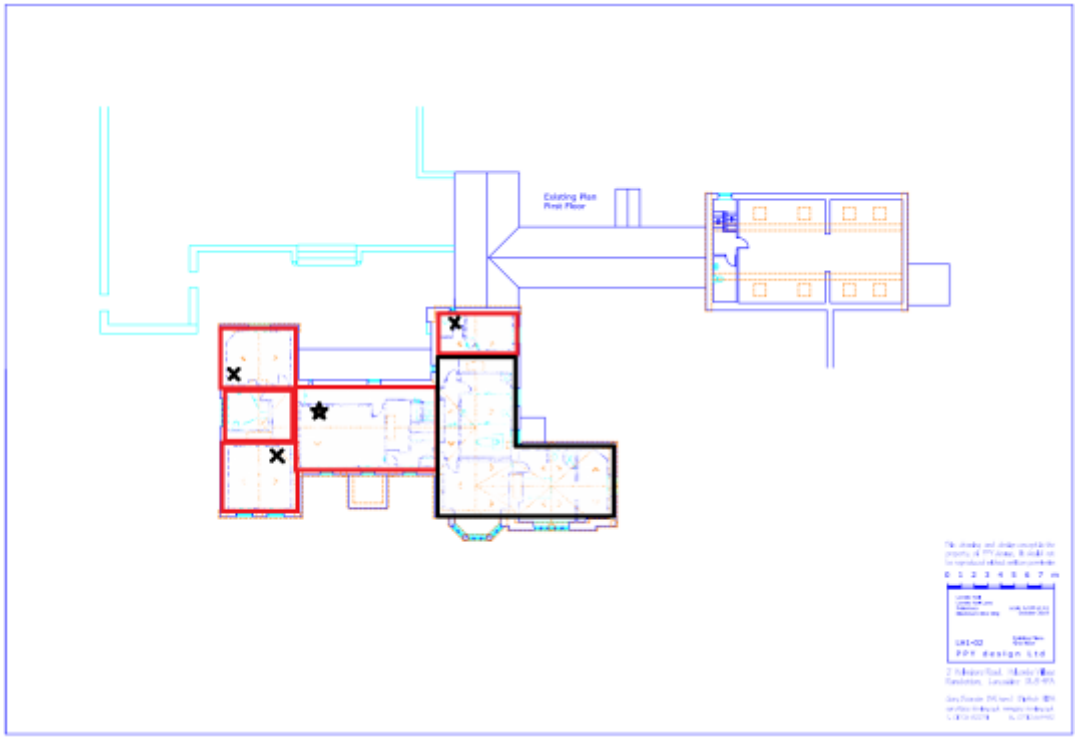

Figure 5: Accessed loft spaces of Lovely Hall marked with a red boundary. Inaccessible sections are marked with a black boundary. Entrance hatches have been demarcated with a black 'X', and the approximate location of the droppings with a star

7.5 The external assessment of the hall identified a number of typically favoured Potential Roost Features (PRFs) to all elevations of the property. PRFs took the form of the following:

- Gaps at under roof tiles
- Gaps beneath ridge tile
- Gaps at wall plate level
- Gaps beneath the open eaves

Taking into consideration the combination of evidence of use, abundance of PRFs and quality of the immediate habitat, the assessed building, Lovely Hall has been concluded to possess 'high' bat roost suitability in line with current BCT guidelines.

Breeding Birds

7.6 Opportunities that favour the requirements of various bird species that nest within or on the fabric of buildings are observed to all elevations, notably under eaves; furthermore, historic evidence in the form of faecal splashing is identified to the north east and south east aspects of the property, thus the presence of nesting birds within the nesting period (March-August inclusive) is considered to be possible.

7.7 Whilst various areas considered to be suitable for the breeding habits of several Schedule 1 WCA-listed species were identified across the wider site, no evidence of such species was located. Anecdotal evidence from the landowner with regards to the usage of the site by nesting Barn owl was supported by the quality of the surrounding habitat; however no suitable platforms for nesting Barn owl were identified on the main dwelling itself.

8.0 Conclusions & Recommendations

8.1 Due to reasons outlined and contained within this assessment, the existing dwelling has been concluded to pertain to a high' bat roost suitability categorisation relative to current BCT guidelines 3rd edition (2016) (see Figure 6 below) and additional surveys will be necessary to establish presence/absence of bats prior to work commencing at the property in the form of dusk emergence or/and dawn re-entry surveys between the months May-August inclusive; surveys will need to be suitably spaced apart, (at least two weeks).

Based upon this categorisation, it is recommended that two dusk/dawn emergence and one dawn re-entry survey are conducted in the main active season of bats (May - August) in order to establish if/how the building is being used by bats and if so identify the species, abundance, roost locations and flight lines following emergence/re-entry.

Table 7.3 Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).

Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry survey[a] (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey.[b]	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn.[b]

[a] Structures that have been categorised as low potential can be problematic and the number of surveys required should be judged on a case-by-case basis (see Section 5.2.9). If there is a possibility that quiet calling, late-emerging species are present then a dawn survey may be more appropriate, providing weather conditions are suitable. In some cases, more than one survey may be needed, particularly where there are several buildings in this category.
[b] Multiple survey visits should be spread out to sample as much of the recommended survey period (see Table 7.1) as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more. A dawn survey immediately after a dusk one is considered only one visit.

Figure 6: Bat Conservation Trust extract

8.2 In the event that the presence of roosting bats at located at Lovely Hall, a European Protected Species Mitigation Licence (EPSML) may be required for the development to legally proceed.

8.3 Natural England provides information and guidance about EPSML and the following extract is included in that guidance:-

If you intend to apply for a licence for development you are advised to seek the guidance of a consultant ecologist. Natural England's view is that:-

A licence is needed if the consultant ecologist, on the basis of survey information and specialist knowledge of the species concerned, considers that on balance the proposed activity is reasonably likely to result in an offence under the Conservation of Habitats & Species Regulations 2017.

If the consultant ecologist, on the basis of survey information and specialist knowledge of the species concerned, considers that on balance the proposed activity is reasonably unlikely to result in an offence being committed then no licence is required. However, in these circumstances Natural England would urge that reasonable precautions be taken to minimise the effect on European protected species should they be found during the course of the activity. If European protected species are found, cease the work until you have assessed whether you can proceed without committing an offence.

A licence should be applied for if an offence/s is unavoidable and the work should not recommence until a licence is obtained.

The application should be completed by the developer and a consultant ecologist. The ecologist will need to be able to demonstrate to the satisfaction of Natural England that they have the relevant skills and knowledge of the species concerned.

NB: Where more detailed bat surveys are recommended, following an initial investigation, then Local Authorities on the advice of their ecological advisors, may not determine the application until such time that all relevant information is gathered, i.e. by conducting dusk/dawn surveys. The advice that is provided by the ecological advisors is also in accordance with the obligations placed upon Local Authorities by way of its duties under the Conservation of Habitats & Species Regulations 2017. Therefore it would be prudent to make enquiries to the relevant departmental Planning Officer before submitting a Planning Application that includes an ecological survey report that recommends more detailed surveys.

8.4 Installation of lighting as part of any development that exceeds current levels may have a negative impact upon foraging/commuting bats. Increased light spillage should be avoided in areas likely to be used by bats as a foraging resource such as the parameters of the western site boundary.

If inappropriate and ill designed lighting is implemented across the site, then there is likely to be an adverse impact upon bats. There are many measures that can be used, where lighting is unavoidable to reduce potential impacts. These include, however are not limited to, the light source used and luminaire design and accessories to direct light at its intended target. Numerous software programmes are currently available which can be used inform lighting plans, demonstrating how lighting decisions will illuminate a site. Refer to the Bat Conservation Lighting Guidelines for further information.

8.5 A variety of nesting platforms exist at the building suitable for breeding birds; therefore, it is recommended that roofing operations are undertaken outside of the breeding season (March-August inclusive) unless it can be conclusively demonstrated by an ecologist that nesting birds are absent. Enhancement for nesting birds is recommended to be incorporated as per Appendix II.

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Appendix I: Site Photographs

Plate 1: Front elevation of Lovely Hall

Plate 2: Rear elevation of Lovely Hall

Plate 3: Eastern elevation of Lovely Hall

Plate 4: Western elevation of Lovely Hall

Plate 5: General character of the loft space(s)

Plate 6: Open eaves on Western elevation

Plate 7: Gaps under tiles indicated

Plate 8: Immediate habitat of Lovely Hall

Appendix II: Biodiversity Net Gain: Enhancement Strategy

House Sparrow (*Passer domesticus*) provision

The Sparrow Terrace has been designed to help redress the balance of falling House Sparrow numbers. The current UK population is now half of what it previously was in 1980 and this is widely attributed to habitat destruction and lack of suitable nesting spaces. House Sparrows are social birds and like to nest in company, therefore, this terrace provides ideal nesting opportunities for three families.

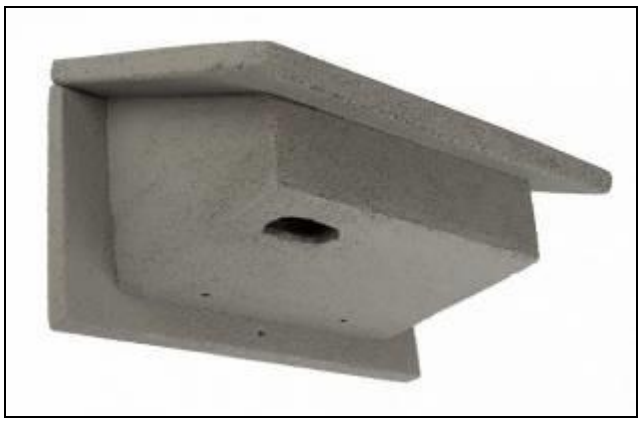
The terrace can be fixed on to the surface of a suitable wall or incorporated into the wall. It is suitable for all types of agricultural buildings such as barns under eaves or overhanging roofs on a North - North East elevation

See - www.nhbs.com/title/174850/1sp-schwegler-sparrow-terrace

Swift (*Apus apus*) provision

The type of entrance possessed by the WoodStone Swift Nest Box is preferred by swifts and discourages competing species such as house sparrows.

This box should be installed at least five metres above ground level , ensuring that there is unobstructed access for birds entering and leaving, preferably being placed in a sheltered locality under eaves or overhanging roofs on a North- North East elevation



https://www.nhbs.com/woodstone-swift-nest-box?bkfno=217160&ca_id=1495&gclid=EAIaIQobChMI4Ovj4pXq5wIVFZ3VCh3_oQWGEAkYASABEgJ1Z_D_BwE

Invertebrates

Bee and Bug Houses will provide valuable habitat on site for solitary bees and other insects. At a time when many of our native insects are struggling, this is a fantastic way to give them a helping hand. Top chambers can feature wooden nesting tubes in wooden blocks, together with bamboo tubes of various sizes. Alternatively holes can be drilled into existing timber to create novel designs - perfect for attracting ladybirds, earwigs and lacewings. Other chambers can be filled with miscellaneous items such as pine cones to provide nooks and crannies for insects, aiding to provide habitat for insects that predate natural garden pests such as aphids. Natural materials, such as straw or bark, will provide an excellent winter habitat for lacewings, ladybirds, woodlice, earwigs and many other bugs. A range of other novel ideas can be used.

For example, see link - www.nhbs.com/bee-and-bug-biome