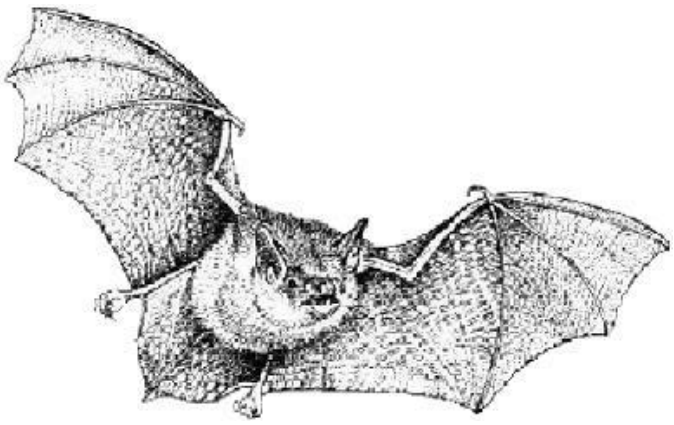
Happy Cottage,
Lovely Hall Lane,
Copster Green,
Salesbury,
Blackburn,
Lancashire
BB1 9EQ

Preliminary Ecological Appraisal in respect of Protected/Notable Species Including Bats and Nesting Birds, (including Barn Owl).

Surveyor- Mike Fisher
(Bat Survey Licence Level 2 Class Survey Licence WML CL18)
(Bat Roost Visitor Level 1 Class Survey Licence WML CL15)



Echo Calls Bat Surveys

10th September 2024

1. Introduction.

1.1 Reason for Survey.

As part of the process to obtain planning permission to develop the site, a preliminary ecological appraisal, including a daylight evidence and opportunity bat survey and assessment, a separate evening nocturnal bat activity and emergence survey, and also a current bird nesting survey were undertaken. The purpose of these surveys was to provide evidence on habitats, and if any protected/notable species were present within the site boundaries, as part of the Local Development Framework (UDP Policy EN9), and Core Strategy Policies, CG1 and CG3.

1.2 Aims

The aims of this preliminary ecological assessment were to:

- The Local Planning Authority, on the nature conservation value of the site, and its surrounding area.
- To assess the site for the presence or potential, for protected species within the proposed development site, by doing a detailed inspection of both the exterior and interior of any structures, to look for features that bats could use for entry/exit, and for roosting, and also to search for bats themselves.
- To enable the client to comply with legislation afforded to protected sites and species.
- To highlight the presence of any habitats or species of ecological importance, including Habitats and Species of Principal Importance (NERC Act, 2006).
- To identify any ecological constraints in relation to the proposed project, and any future development in the site.
- To establish the need for any further surveys and assessments.
- To make nature conservation recommendations, and identify opportunities for ecological enhancement and biodiversity gain within the proposals.
- To identify the need for a Natural England Bat Development Licence (required if a roost is identified).

1.2 The Site.

The site was a large plot of land, positioned along the northern edge of Lovely Hall Lane, in the Salesbury area of Blackburn in Lancashire, and consisted of a cottage and its two extensions which were the western part of a larger dwelling complex, however only these three parts were surveyed. Also positioned within the overall site were two separate garages, one positioned along the western site boundary, whilst the second was in the south-eastern corner of site, close to Lovely Hall Lane, however, these garages and the eastern half of the complex, were not included in the planning application, and therefore these were not currently surveyed. The targeted buildings and the immediate surrounding land from now on, were referred to as the “site”, at OS grid reference SD 67496 33765, (refer to **Fig 1** - **The Site Location**).

1.3 The Targeted Buildings.

There was a cottage and two attached extensions, located within the overall site boundary, and all of these were targeted and currently surveyed.

1.4 Surrounding Land.

The targeted site was a large plot of land, positioned in a rough north to south orientation, and which contained the targeted cottage its extensions, and the two unsurveyed garages. Whilst positioned to the east and south-east of these were the adjoining buildings which were not surveyed

at this time. The western and southern half of the overall site was a large area of hardstanding, bordered by low stone walls and used for vehicle parking.

Along the south-eastern site boundary was an area of trees and shrubs, with a large area of open grassland further east containing some hedgerow, and lines of trees and shrubs, whilst to the east and north-east of the adjacent unsurveyed building, were areas of hardstanding used for car parking, with further dwellings beyond these to the north-east.

Across Lovely Hall Lane to the south of the site, were numerous dwellings and their gardens bordered by either hedgerow or low stone walls, and some with a few trees growing within their gardens. Whilst beyond these stretching away to both to the south and south-east, were large areas of open pasture bordered by lines of mature hedgerow, and containing an ephemeral pond amongst a small coppice of trees, lying approximately 0.35 km to the south of the site.

Immediately to the west of the site were some pastures and fields bordered by stone walls, belonging to a small farm about 0.03 km to the west, together with a few dwellings running along the eastern edge of Longsight Road that stretched in a roughly north-east to south-west direction, approximately 0.09 kw to the west of the site at its nearest position. There was a large area of open pasture lying along the western edge of the road, together with Park Brook which meandered in a similar orientation, a further 0.06 km to the west. There was an area of mature woodland growing along the northern bank of the Brook, which stretched away to the west, and contained the buildings and flower beds, belonging to Mill House Nurseries, 0.11 kw away to the north-west of the site at its nearest point, amongst fields and beds of flowers and other plants.

Immediately to the north of the overall site, were a mixture of dwellings and converted buildings, most with large hedge bordered gardens, and some open fields, However, although there were a few small ephemeral ponds and some drainage ditches dotted around the general area, other than these above mentioned features, there were no large areas of nearby open water, or other areas of woodland in the surrounding area, (**refer to Fig 1 – The Site Location, Fig 2** – **Google Plan**, **Fig 3 – Main Plan showing the local area and habitats, Fig 4 – Plan of Photographs, Fig 5 - Plan Showing Results of Preliminary Daylight Evidence and Opportunity Survey and Assessment, and Fig 6 – Plan of Evening Nocturnal Bat Activity Emergence Survey Results).**

2. Methods.

2.1 Risk Assessment, Possible Hazards.

The required access to the site was good, and full access into all parts of the targeted site was easy. As the cottage and its extensions were fully occupied, and were in excellent condition, there were no more hazards other than those normally associated with surveying both the inside and outside of both this types of building and the surrounding areas.

2.2 Methodology of Bat Surveys.

A number of factors are used for the survey methodology, which include:

- Presence/absence of roost potential.
- Value of roost potential – if present.
- Knowledge of bat species relevant to the site location, and geographical range.
- Condition of trees, shrubs, and any nearby water bodies
- Nature of the immediate, and surrounding habitat, in relation to foraging opportunity.

2.3 Preliminary Daylight Evidence and Opportunity Survey and Assessment.

Preliminary Ecological Appraisal.

The preliminary ecological appraisal (PEA) of the site took place on 30th August 2024, and was carried out in order to assess the site, and search for evidence of any bat occupation, (including recent and historic roosting), and if possible, what species if any of bat were present. The current survey was undertaken in accordance with the standard methods described in the 'Bat Worker's Manual' (JNCC 2004)' and 'Bat Surveys – Good Practice Guidelines', (BCT 2023, in order to assess the site to determine its suitability for bats,

It comprised a Daytime Bat Walkover (DBW), including a daylight evidence and opportunity survey and assessment on the targeted buildings, which were both searched for evidence of bat occupation, (including recent and historic use), and looking for either bats themselves, bat droppings, urine stains, remains of any invertebrate prey, or any grease marks from repeated contact, or passage by bats through narrow roost accesses, or any other signs of bat occupation.

Areas within the targeted buildings searched were:

- Outside both the cottage and its extensions, their eaves, soffits, walls, and roofs, for signs of potential bat access holes, also the ground, doorways, and any other surfaces such as refuse bins, or garden furniture, which may occur underneath the eaves, or around the perimeter of the buildings, all of which may catch bat droppings.

- Inside all parts of the buildings, any roof voids, upon roof trusses, on the floors, door lintels, window ledges, or on furniture, pieces of equipment and other materials, also in spiders' webs and other places where droppings or prey remains may collect. Also, noting any noises such as scratching and squeaking which may be made by roosting bats.

Although the optimum time to investigate buildings for evidence of a bat roost, is between May and September, this can sometimes be earlier or later in the year, and is weather and temperature dependant. However, preliminary daylight evidence and opportunity surveys and assessments, may be conducted outside of this time, and can often provide conclusive ecological results, which can save expense and time for Planning Applicants.

All possible roosting areas within any trees, shrubs or hedgerow, both around the site perimeter, or growing within a site itself, were searched for bats, bat droppings, urine staining, any remains of invertebrate prey, grease marks from repeated contact, or passage through any narrow roost accesses, or against surfaces, and any other signs of bat occupation.

The habitats around the site and any surrounding trees, shrubs and hedges, were assessed for their suitability for use by foraging and commuting bats.

All currently nesting bird species observed during the survey were recorded.

2.4 Equipment.

Equipment used consisted of close-focus binoculars, camera, endoscope, ladders, powerful hand-held torches, and a separate Darkbeam LED ultraviolet flashlight**.**

2.5 Evening Activity and Bat Emergence Survey.

An evening activity and bat emergence survey was carried out to further assess the site, by observing how bats utilise the site, and observe if any bats emerged from possible roosts within the cottage complex, from other nearby buildings, or from any of the trees, shrubs or hedgerows growing close by around the site boundaries. This took place on 30th August 2024, and was carried out by surveyors strategically positioned to ensure, as good an observation as possible of the

targeted site.

2.6 Equipment

The equipment used during the survey consisted of close-focus binoculars, infrared night vision binoculars, powerful hand-held torches, an Echo Meter Touch 2 real-time expansion detector, a Bat Box 3D heterodyne bat detector, and magenta heterodyne bat detectors, all with earphones.

3. Results.

3.1 Preliminary Daylight Evidence and Opportunity Survey and Assessment.

3.1.1 Weather.

The weather conditions at the start of the survey, (30th August 2024), were reasonable. There was some cloud cover and some sunny periods, the temperature at the time of the survey of 17°C, and a light breeze, (Beaufort Scale 2/3), and as such, conditions were deemed suitable for a survey of this type.

3.2 Possible Roost Sites.

3.2.1 The Buildings.

The site consisted of a two story cottage, with a hipped extension attached to its north-western corner, and a single storied entrance porch attached to its south-western corner, and all were surveyed for signs of bat roosting and occupancy.

The Cottage.

The cottage was a two storied hipped building, both parts rectangular in shape, and the main part was orientated in a rough north-west to south-easterly direction, with the other part of the hip running in a northerly direction. However, the remaining northern and eastern elevations could not be externally surveyed as they were a part of an adjacent property and its garden. The southern, western, and northern elevations of the main part of the cottage, were all covered in render covered stone, with a fully underlined and insulated, pitched, slate covered roof, and an insulated roof void. The western elevation of the hipped part of the cottage was also covered in rendered stone, again with a roof of slate tiles, with an interconnected, fully insulated roof void.

Attached both externally and internally to the north-western corner of the complex at ground floor level, a single story extension had been added, orientated in a westerly direction. This was constructed from stone, with a sloping roof that continued the pitch of the main roof, and which contained several rooflites. As the roof voids were connected internally to the main roof, they had been turned into bedrooms, and were fully heated and insulated.

There was a small, single storied entrance porch, attached both internally and externally to the south-eastern corner of the cottage. This was rectangular in shape, with render coated stone walls and a pitched roof of slate tiles, but as the roof void could not be surveyed, it was assumed that the void was insulated like the rest of the complex.

All of the cottage was occupied, and was heated and fully insulated, and all parts were in excellent condition and well maintained, with sound windows, doors, gables, soffits, render coating, roof and rooflites, and as such, all parts offered negligible opportunities for roosting bats.

An internal survey and search of all parts of the cottage and its interiors, found neither bat droppings, any invertebrate prey remains, nor was any fur staining found, also no urine stains were seen when surveying the roof void interiors, and outer walls with a LED ultraviolet flashlight, and

therefore, the whole dwelling complex was judged to be of low bat roost suitability, (refer to **figs 2, 3, 4,** and **5**, and **photos 1** to **16**).

There were potential bat access points in the complex, and these were;

- There was a small central heating vent protruding through the western wall of the extension, close to the underside of the main roof, however a search of this found the pipe to be fully meshed internally, which fully restricting any access into the pipe itself, and as an external search of the wall and floor beneath the vent, found neither bat droppings, any invertebrate prey remains, nor any other sign of bat occupancy, and also, a search of these areas using an UV flashlight, found neither urine nor fur grease staining, and it was concluded that the vent was not in current use by bats, nor had it been used historically, and therefore it was judged to be of very low bat roost suitability, (refer to **figs 2, 3, 4,** and **5**, and **photos 1** to **4**).

- There were four vertical metal pipes at different locations, in both the northern cottage roof, and the western extension roof, all being used as ventilation chimneys, and each was capped. However, these were surveyed using close-focus binoculars and an UV flashlight, as was the roof around and below them. As such, these were all judged to be in excellent, sound condition with mesh beneath the caps, and as no bat droppings were observed, nor was any urine staining seen, the evidence suggested that the ventilation chimneys were all of negligible bat roosting suitability, (refer to **figs 2, 3, 4,** and **5**, and **photos 1** to **5**).

3.2.2 Trees and Shrubs.

There were a few small shrubs growing close to the entrance porch, and a line of hedgerow growing along the eastern boundary of the site, and a search of all of these found that none offered any lifted bark, canker damage, cracks, or holes suitable for roosting bats, and as such all were deemed to offer low bat roost suitability, (Refer to **Appendix 3**).

There were some shrubs, trees and lines of hedgerow In the surrounding area, particularly within the complex immediately to the west of the site, but as these were not growing within the targeted site, they were not closely surveyed.

it was understood at the time of the survey that the vegetation growing within the site, would probably not be affected by the planned proposals, although it was thought likely that some of this vegetation could be used by nesting birds during the nesting season, at the time of the survey however, although there was some bird activity in and around the site, no active or unused nests were found. It was also surmised that due to the time of year, that most birds will have already bred, and their first broods will probably have already fledged.

Although there was good potential for barn owl to forage in the nearby vicinity, it was felt that the targeted buildings within the complex, offered negligible potential for either roosting, nesting or breeding.

3.2.3 Foraging Potential and Alternative Roost Potential.

The targeted site was in a suburban area, and consisted of a large plot of land, positioned in a rough north to south orientation, and which contained the targeted cottage and its extensions, there were also two garages, and the adjoining buildings to the east and south-east, around the site, and these were not surveyed. Whilst the remainder of the site consisted of a large area of hardstanding, bordered by low stone walls, and used for vehicle parking.

Also, to the south-east of the site was an area of trees and shrubs, with a large area of open grassland further east, containing some hedgerow, and lines of trees and shrubs, together with dwellings and their grounds. Whilst across Lovely Hall Lane to the south of the site were numerous dwellings and their gardens containing a few trees, bordered by either hedgerow or low stone walls,

and beyond these stretching away to both to the south and south-east, were large areas of rough pasture bordered by lines of mature hedgerow, and containing an ephemeral pond amongst a small coppice of trees.

Immediately to the west of the site were some pastures and fields bordered by stone walls, close to a few dwellings running along the eastern edge of Longsight Road that ran in a roughly north-east to south-west direction, with a large area of open pasture lying along the western edge of the road, together with tree-lined Park Brook which meandered in a similar orientation further west. There was an area of mature woodland growing along the northern bank of the Brook, and which stretched away to the west, and contained the buildings and grounds belonging to Mill House Nurseries to the north-west of the site. Whilst to the north of the overall site were a mixture of dwellings and converted buildings, most with large hedge bordered gardens and some open fields,

However, although there were a few small ephemeral ponds and some drainage ditches dotted around the general area, other than these above mentioned features, there were no large areas of nearby open water, or other areas of woodland in the surrounding area, and all these characteristics together offered linear features suitable for foraging bats, such as pipistrelle species, noctule, and possibly other bat species, to commute along, and to forage amongst for their insect prey.

In accordance with the "Bat Survey, Good Practice Guidelines" (Bat Conservation Trust 2023), it says, "A structure with one or more potential roost sites that could be used by individual bats, opportunistically at any time of the year. However, these potential roost site do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger number of bats, (i.e. unlikely to be suitable for maternity and not a classic cool/stable hibernation site, but could be used by individual hibernating bats), they are of low bat roosting and foraging suitability", (Refer to **Appendix 2**).

The targeted cottage and its extensions fitted these criteria, however, other than the above mentioned features, there were no other large areas of woodlands or any large watercourses nearby, and thus the area was assessed to offer low to moderate potential value for foraging bats, primarily pipistrelles, but it was thought that small numbers of other species could be present.

It was considered that other buildings, especially dwellings in the surrounding area, could offer greater potential as bat roosts. Bats favour heated building whilst breeding.

3.3 The Evening Activity and Bat Emergence Survey.

An evening activity and bat emergence survey was carried out in order to further assess the site, and observe if any bats emerged from roosts within any part of the targeted garage or separate workshop, or from any other feature positioned close by, and this survey also took place on 30th August 2024.

3.3.1 Weather

The weather conditions at the start of the survey (30th August 2024) were dry, and although there was some cloud cover and a light breeze, (Beaufort Scale 2/3), and with a temperature at the time of the survey of 15°C, such conditions were judged to be good for a survey of this type.

3.3.2 The Survey

Sunset on the 30th August 2024 was 20.03 hrs, and the survey started 20 minutes before sunset at 19.43 hrs, and ended when it was too dark to observe any bats well.

The first two bats observed were both Noctule bats *(Nyctalus noctula),* and both were heard but not seen. The first was at 20.14 hrs flying close to the trees in the north-western corner of the site, whilst the second was at 20.26 hrs, over Lovely Hall Lane close to the south-eastern corner of the site, and it was thought that these were commuting bats, (refer to **pink arrows 1** and **2** on **fig 6**).

From 20.28 hrs a noctule was observed intermittently as it foraged in a loop both along and amongst the trees and hedgerow close to the south-western of the stie. It was thought that this could be the same bat heard but not seen close to this location, earlier in the survey. This behaviour continued around this area for the continuation of the survey, and during which time some feeding buzzes were heard, (refer to **pink arrow 3** on **fig 6**).

Beginning at 20.36 hrs a common pipistrelles (*Pipistrellus pipistrellus),* was heard foraging over the garden and patio, of the adjacent building to the north-east of the site, however, this behaviour continued around this area for the continuation of the survey, and during which time feeding buzzes were heard but the bat was very rarely seen, (refer to **pink arrow 4** on **fig 6**).

From 20.38 hrs until the survey ended, another common pipistrelle was observed in a continuous foraging loop over the southern half of the site and the adjacent pasture to the west of the site. This behaviour continued until the survey ended, and during which time numerous feeding calls were heard, (refer to **pink arrow 5** on **fig 6**).

A soprano pipistrelle *(Pipistrellus pygmaeus)* was first observed at 20.46 hrs, continuing for the rest of the survey ,and this was also in a foraging loop over Lovely Hall Lane, and the gardens to the south of the site, once again feeding buzzes were regularly heard, (refer to **pink arrow 6** on **fig 6**).

No other bat activity was observed around the site, and at no time were bats seen to have emerged from any part of the targeted cottage or its extensions, or from any of the hedgerows or shrubbery growing within the site, or around its boundaries, nor from any other nearby buildings and their gardens.

During the survey, although some birds were observed around the site, none were seen exhibiting any type of nesting behaviour, and therefore, it was concluded that the targeted buildings were not being used by currently nesting birds.

Although the surrounding habitat of open pastures, lines of trees and hedgerow, offered good foraging potential for barn owl, however, all parts of the dwelling, and the nearby unsurveyed buildings, offered negligible breeding or roosting potential for them. As no evidence of roosting barn owls was observed in any part of the targeted site, it was concluded that barn owls do not use the site, either as a regular nesting roost, or as a breeding roost.

4. Conclusions

4.1 In summary, during the current surveys undertaken on 30th August 2024, neither current nor historic evidence, of roosting bats was found in any part of any part of the cottage complex, or elsewhere within the targeted site.

4.2 The cottage and its extensions were all fully occupied, and were heated and insulated. Also, they were all in an excellent overall condition, being well-maintained, with well-sealed windows, doors, soffits, rooflites and roof, and with negligible roosting opportunities, and therefore this resulted in an overall low bat roosting suitability for the whole complex, (Refer to **Appendix 2**).

4.3 None of the lines of hedgerow around the site boundaries, or any of the small shrubs and trees growing within the site itself, offered any roosting opportunities, and therefore they were all concluded to offer negligible bat roost suitability, (refer to **Appendix 3**).

4.4 Since bats, particularly Pipistrelles, are opportunistic, an absence of roost evidence at present, does not preclude the low possibility of small numbers of bats, using the site, its buildings or boundaries, occasionally in the future and/or at other times of year. It was considered that the likelihood of a significant roost (such as a maternity roost), being established as very unlikely, with lone and/or transient roosting likelihood being negligible.

4.5 The adjacent habitats had the potential to support only low to moderate numbers of foraging common pipistrelle, soprano pipistrelle and noctule, but low numbers of other species of bats was possible, but unlikely. It was concluded that since there was currently no evidence of the presence of bat roosts within any part of the site or the targeted buildings, that the proposed changes to the site, will not have significant implications on the population status of local bat species. Therefore, there will not be requirement for an EPS mitigation licence (as issued by Natural England) but as a measure of best-practice, precautionary measures should be applied as described in section 5 below.

4.6 It was also concluded that since no current evidence of roosting bats or many roosting opportunities had been found, during either the preliminary ecological survey and assessment, or the separate evening nocturnal activity and bat emergence survey, both undertaken on 30th August 2024, then a single visit to the site was considered sufficient for a preliminary appraisal of the site, (refer to the 'Bat Worker's Manual' (JNCC 2004) and 'Bat Surveys – Good Practice Guidelines' (BCT 2023).

4.7 It was understood that there may be some site clearance work carried out during the planned development, but that this will be kept to a minimum, and the small shrubs and trees growing within the site, and the lines of hedgerow around the site boundaries, would not be affected by the planned development. Also, as bats use linear features such walls of buildings, lines of trees, hedgerow or fencing, and bodies of water as both foraging, navigating, and as commuting routes, it was concluded that any small loss of the habitats, and any future development work on the site, would not affect the overall foraging or commuting potential for bats in the area.

4.8 All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended) while they are breeding. There was potential for the habitats including the trees and shrubs within the neighbouring gardens, and some of the nearby structures, could be used by birds for both roosting and nesting purposes, but neither active or historic nests were found during the survey, and it was thought likely, that by this time of the year, most birds will already have had their first broods, and their young will have potentially fledged, (Refer to **Appendix 1**).

4.9 It was also concluded that as no evidence of barn owl was found during the surveys, that barn owl do not use the site for either as a nesting roost, or as a breeding roost.

5. Recommendations.

5.1 The proposed changes to the site as laid out in the planning application, are of minimal risk to either roosting bats or nesting birds, (including barn owl), and therefore, development can commence if the following mitigation measures are adhered to.

5.2 The aim of any mitigation is to ensure that work is carried out in a manner that avoids harm, or significant disturbance to bats, also, to create new enhanced roosting opportunities for bats, both during and after the development. However, a key issue in successful mitigation measures, is the scheduled timing of the works. Ideally, the cottage and its extensions, (not considered suitable for hibernation), especially any roofs, should be worked on in winter to avoid the possibility of bats moving in and using a building as a spring, summer, or autumn roost after the survey. The safest period will be from the first hard frosts, normally mid-December, until mid-March, although this could be earlier in a warm spring or later in a cold spring.

5.3 However, as it is likely that different parts of the complex may be worked on at separate times, it will be very unlikely that roosting bats will be disturbed, but it is recommended that work starts as soon as possible after this survey, and that any ridge tiles, slates or sheeting over roofs, walls and gables, are carefully removed by hand, (the ridge and edge tiles, are the features most likely to harbour potential for the support of roosting bats).

5.4 Although all parts of the dwelling and its extensions, had low bat roosting suitability, in accordance with “Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition) Collins, J. (2023)”. it is recommended that if building work is delayed until more than 12 months between this survey and any commencement of building work, then the surveys must be repeated, and these need to be carried out under weather conditions suitable for normal bat activity (May to September), and must include both a daytime evidence and opportunity bat survey and assessment, and potentially at least one evening nocturnal bat activity and emergence survey.

5.5 As a measure of best practice and in accord with a key principle of National Planning Policy Framework (2012), it is recommended that the re-development scheme for this site, incorporates biodiversity enhancement measures, and an appropriate measure will be the installation of some Schwegler 1FD bat boxes. These will be attached to the planned building after completion of the building works, and placed as close to the eaves, or a gable apex as possible. Others are to be erected upon poles or trees around the site, after the completion of the modernisation. These should be at least 4 metres off the ground, and away from windows or doors, and any wall climbing plants, to keep the inhabitants of the boxes safe from predators, and disturbance. Also, it is recommended that these measures are implemented to maximise the opportunities for wildlife at the site and obtain a nett gain in biodiversity, (refer to **Appendix 7** for details).

5.6 It is recommended that some wooden nest boxes are to be erected around the shrubbery and vegetation around the site, with some attached to various parts of the suitable buildings. These will be a mixture of open fronted and hole fronted boxes, and are to be erected to mitigate for potential loss of nesting opportunities, both during and after the development, to encourage and enhance future colonisation and nesting by bird species to enhance biodiversity within the site, (refer to **Appendix 8** for details).

5.7 However, it must be remembered, that it is an offence to disturb active birds' nests. It is recommended therefore, that before any commencement of any shrub clearance or any new building work, that a careful survey looking for any evidence of nesting birds is carried out. If evidence of an active bird’s nest is detected, then the nest must be left undisturbed, until it is appropriately confirmed, that the young birds have fledged. It is recommended therefore, to reduce any nest disturbance, that no activity involving people, or their equipment is carried out within a 3m radius of active nests. If there is any doubt, please refer to the consultant. This guidance is applicable during the bird breeding season which typically extends from March to August inclusive.

5.8 No hole or pit should be left uncovered over-night, to ensure that wildlife such as amphibians or hedgehogs are not trapped, and unable to escape. Alternatively, a broad wooden plank or similar can be placed in the excavation to allow animals to escape. A scaffolding board pitched at a maximum 45° angle would be ideal.

5.9 During the development, all excavations should be checked first thing each morning, prior to the start of works that day. Any animals found within excavations should be allowed to escape and move off, or are carefully removed and placed within suitable habitat cover before site works commences for the day.

5.10 It is also recommended, that if any piles of building materials around the site are removed, or disturbed during building works, then this ideally should be undertaken outside the hedgehog hibernating months, November to mid-March. If this is not possible however, a suitably experienced ecologist must be present to oversee all removal, to ensure that no hedgehogs are disturbed or harmed, whilst either hibernating or daytime nesting, (Hedgehogs are a UK BAP Priority species).

5.11 Once all building work has been finally completed within the site, then a full careful search needs to be carried out, amongst any remaining piles of building equipment, or materials, to ensure that neither nesting birds, hedgehogs, or other animals, are disturbed or hurt. Once this has been carried out successfully, only then, can the removal of all materials from the site be carried out.

5.12 It is also recommended that at least one Eco-plate Hedgehog Box should be positioned in the site, in an appropriate location close to the northern hedgerow, to maximise the opportunities for hedgehog within the site, (refer to **Appendix 9** for details).

5.13 Close boarded fences with concrete bases are barriers to animal movement, and It Is recommended, that any new perimeter fences along the boundaries are not to be sealed at their bases. Where possible, hedgerows are to be used instead, with timber post and wire fencing also serving to enforce boundary lines, without prohibiting wildlife movements. If any boarded or concrete fences are required, it is recommended that there is a 13 cm square gap between the wood and the ground, (greater in some locations. and less in others is not a problem), or if this is not possible, then "hedgehog highways" are to be placed within the overall boundary at regular intervals so that wildlife such as hedgehog and amphibians, can pass into and out of the garden, (refer to **Appendix 10** for details).

5.14 Outdoor lighting is typically a deterrent to wildlife, especially bats and nesting birds, it is therefore recommended, that any future outdoor lighting, installed during the proposed development, be screened, hooded or positioned low at bollard level so that it does not illuminate the roof or eaves, or nearby trees and shrubs in accordance with "Bats and Artificial Lighting at Night, August 2023", guidance which has been produced by the Institute of Lighting Professionals in conjunction with the Bat Conservation Trust, (refer to **Appendix 10** for details).

5.15 To enhance the site's value for wildlife, it is recommended that trees be planted to replace any felled trees, and this is planned as part of the development, and that the trees used for re-planting are British native trees as far as is possible. These trees are more likely to attract insects and are therefore beneficial to foraging bats and other wildlife. Suitable species include: Hawthorn, Rowan, Wild Cherry, Guelder Rose and Crab Apple. These have been chosen for their attractive blossom and fruits. Oak, Ash and Willow species are recommended away from buildings and drains.

5.16 It should be remembered that bats are occasionally found in the most unexpected places. If any bats are found during unsupervised work, work must be stopped immediately, and either the consultant (07745 268815), or the Bat Conservation Trust (0345 1300 228), or Natural England (01270 754 00, should be notified, (refer to **Appendix 5** for details). **Failure to do so would be a criminal offence.**

7. References.

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Bats of Britain and Europe - Schober and Grimmberger. Hamlyn (1993).

The Population Status of Birds in the UK: Birds of conservation concern: 2002-2007. Anon. (2007)

The Hedgehog Handbook – Sally Coultard (2018)

8. Surveyors Qualification.

The surveyor Mike Fisher is a holder of:

- Natural England Class Licence Registration Number: 2015-10595-CLS-CLS, this is the Bat Survey Level 2 Class Survey Licence WML CL18.

- Natural England Class Licence Registration Number: 2015-10592-CLS-CLS which is the Volunteer Bat Roost Visitor Level 1 Class Survey Licence WML CL15.

- The surveyor also has a licence to disturb and take bats for scientific, educational, or conservational purposes by Countryside Council for Wales (Licence Number S085859/1).

He was assisted on the survey by Dylan Platt who is very experienced in the use of heterodyne bat detectors and bat surveys.

9. Plans & Photographs.

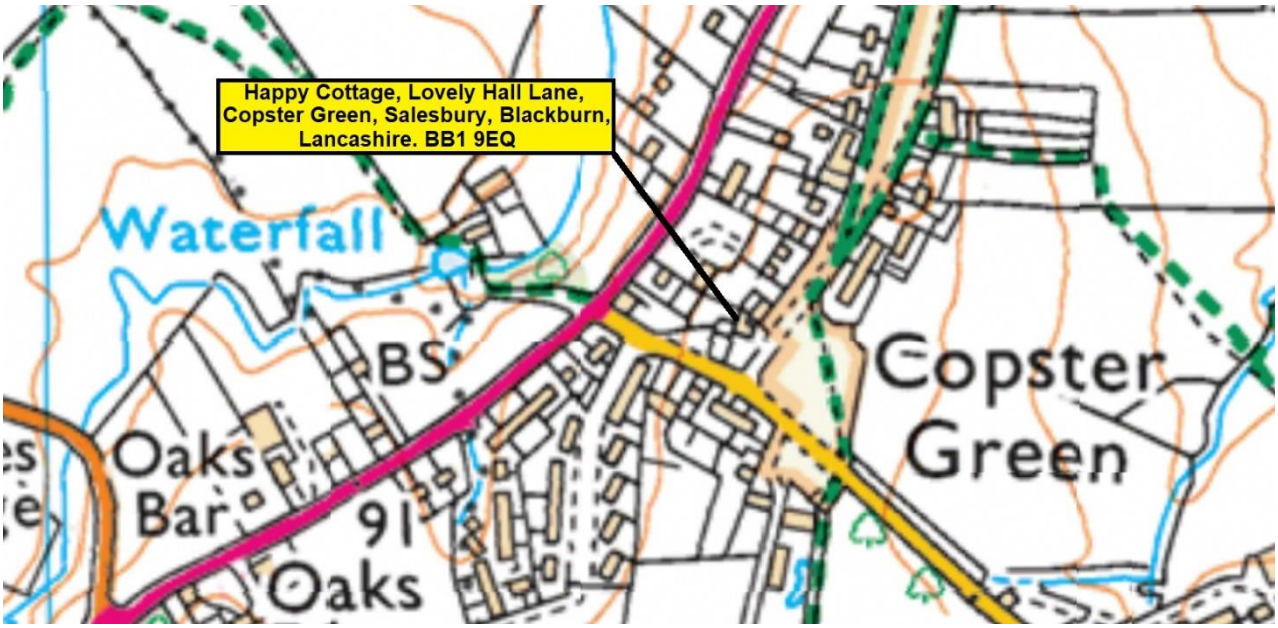


Fig 1 - The Site Location.

Fig 2 – Google Map of Area.

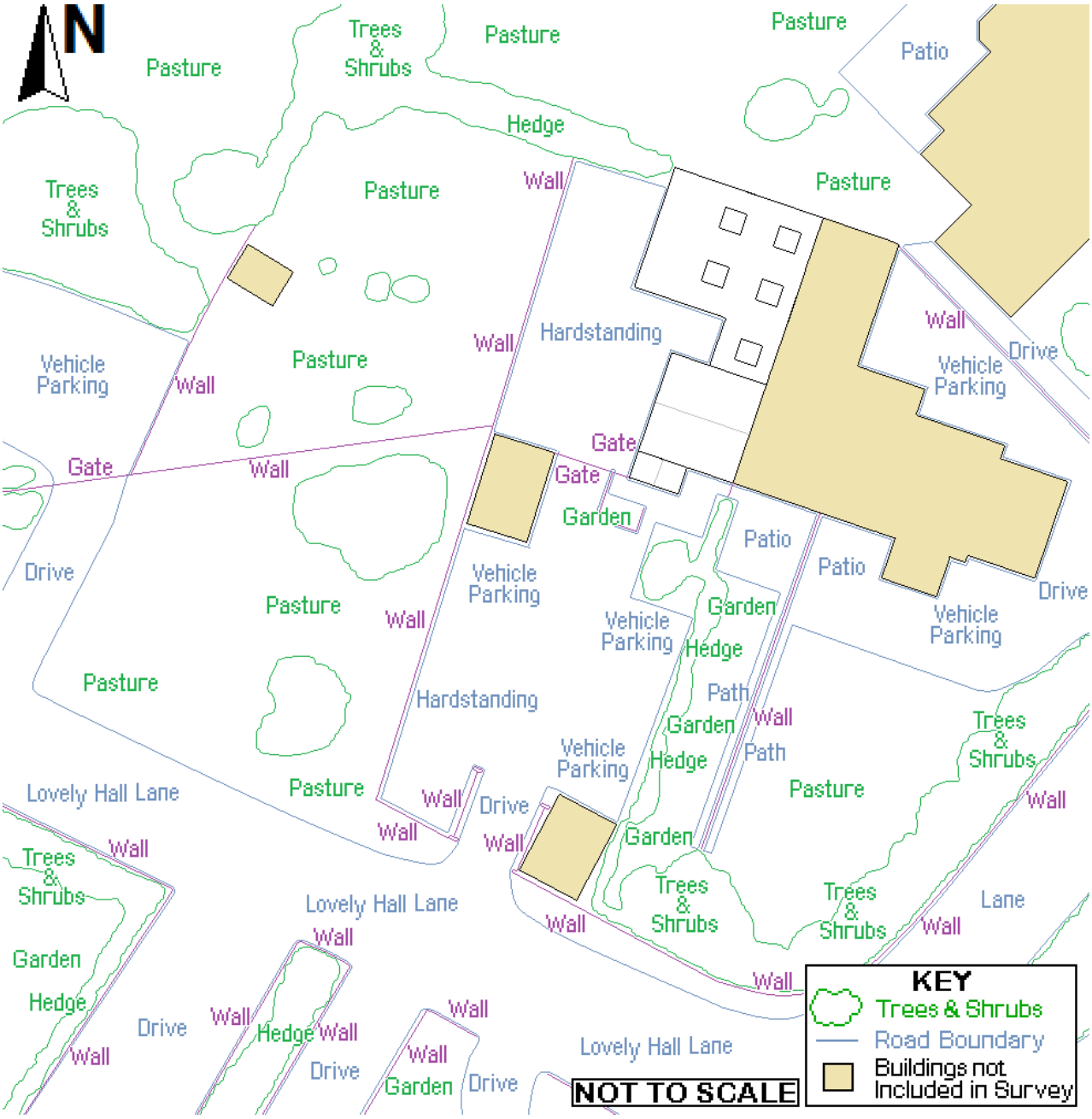


Fig 3 – Main Plan of Area

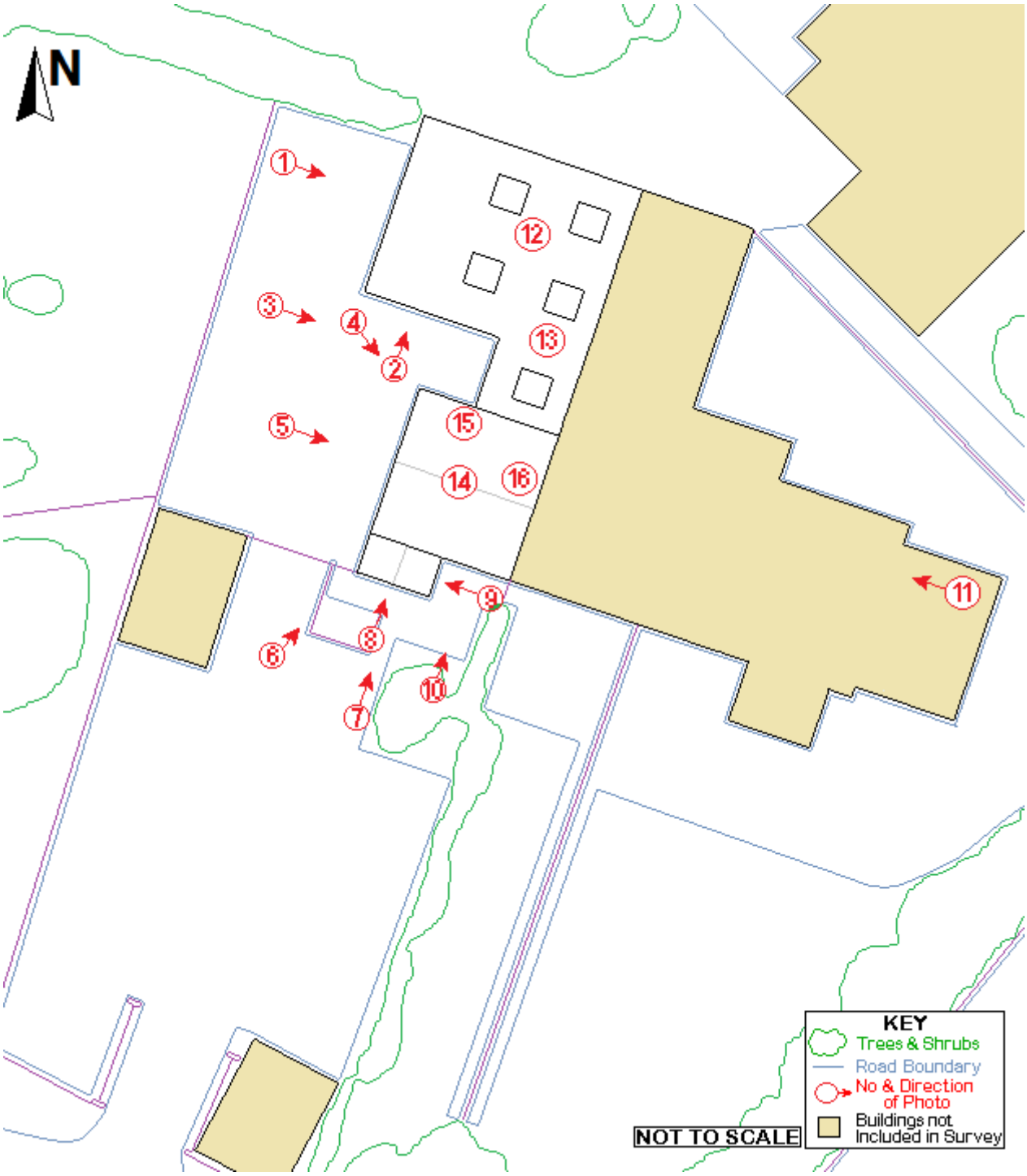


Fig 4 – Plan of Photographs

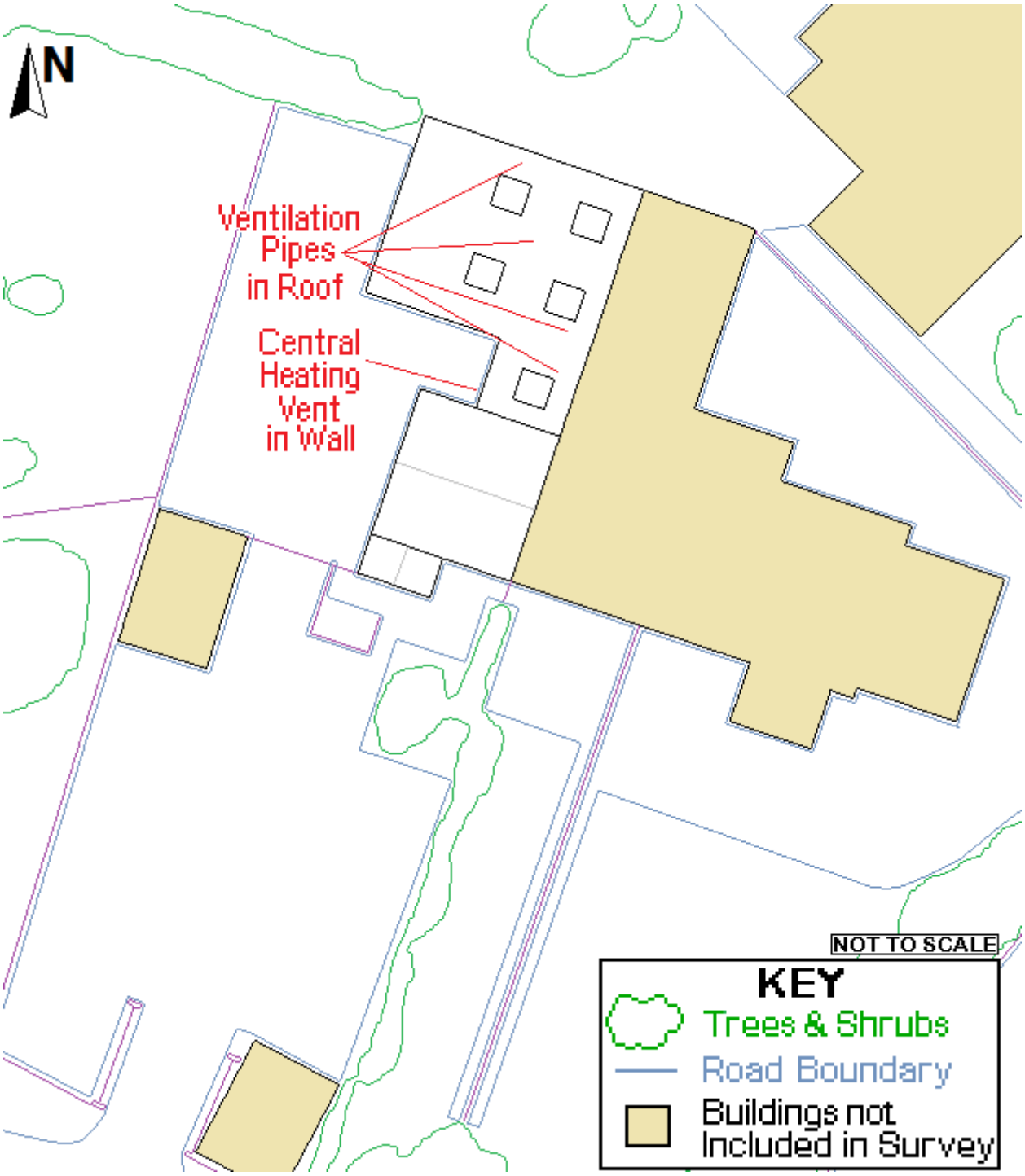


Fig 5 - Plan Showing Results of Preliminary Daylight Evidence and Opportunity Survey and Assessment.

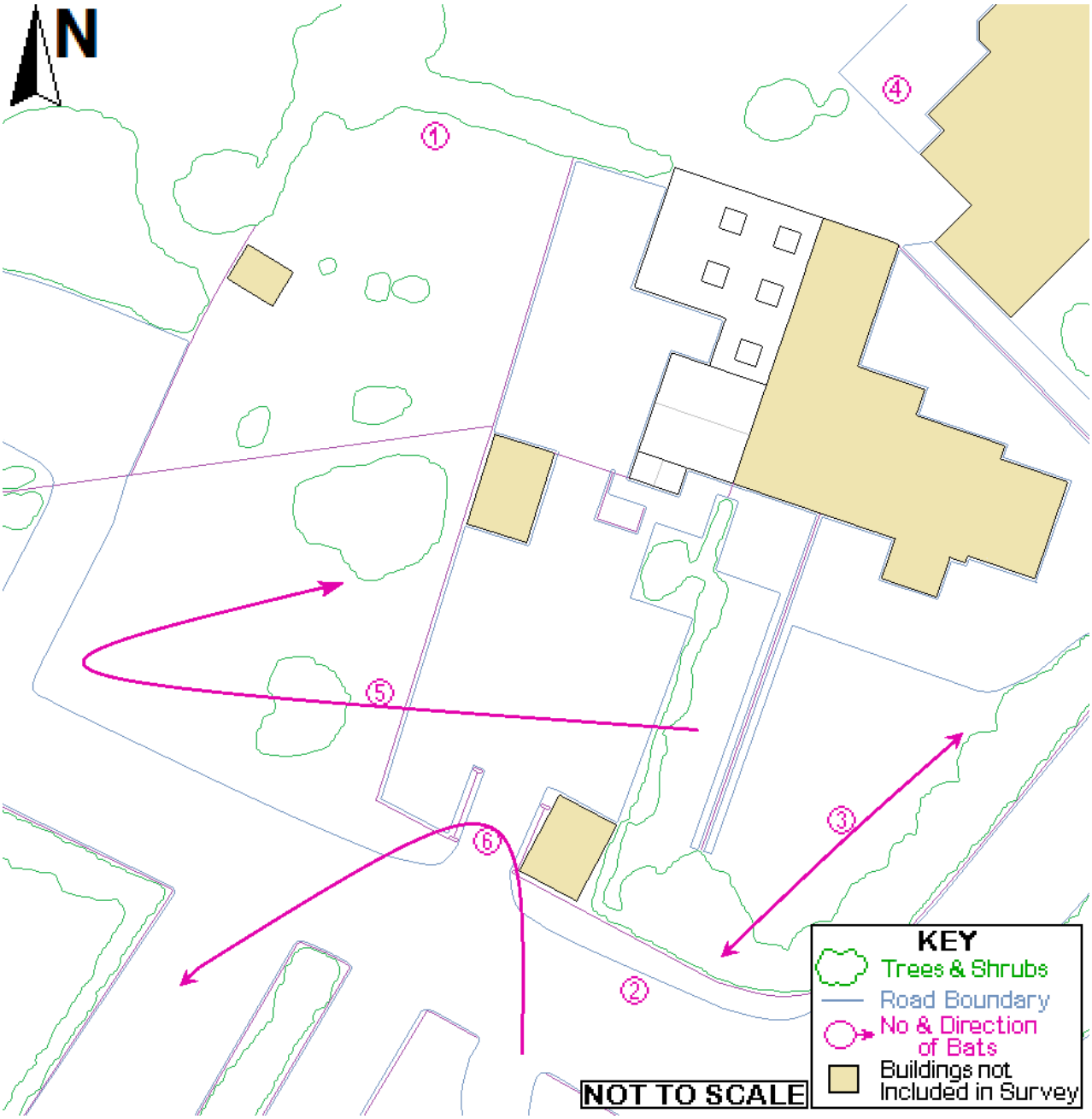


Fig 6 – Plan of Evening Nocturnal Bat Activity Emergence Survey Results

PHOTO 1
Western Elevation of Extension

PHOTO 2
Southern Elevation of Extension

PHOTO 3
South-eastern Elevation of Extension

PHOTO 4
North-western Corner of Dwelling

PHOTO 5
Western Elevation of Extension

PHOTO 6
South-western Corner of Dwelling

PHOTO 7
Southern Elevation of Dwelling

PHOTO 8
Southern Elevation of Entrance Porch

PHOTO 9
Eastern Elevation of Entrance Porch

PHOTO 10
South-eastern Corner of Dwelling

PHOTO 11
Eastern Elevation of Extension

PHOTO 12
Underside of Western Extension Roof

PHOTO 13
Underside of Central Extension Roof

PHOTO 14
Underside of Main Dwelling Roof

PHOTO 15
Underside of North-eastern Dwelling Roof

PHOTO 16
Underside of Eastern Dwelling Roof

10th September 2024
Mike Fisher, Bat Worker
Holder of Natural England Bat Roost Licence

All reasonable effort has been taken to ensure an accurate assessment of the birds and bats at this site. The absence of recorded presence or sign should not be taken as an absolute guarantee that a site is not being used by a particular protected species. There is also no guarantee that any particular protected species will not use the site at any time in the future. Survey results for both bird and bat activity may be weather or seasonally dependent. Any interpretation of legislation is based on our understanding and experience of the law. The relevant statutory authority can provide a more definitive interpretation.

This report has been prepared by Echo Calls Bat Surveys with all reasonable skill, care and diligence, within the terms of the Contract with the Client.

APPENDIX 1: Synopsis of Relevant Legislation

Bats and the Law
In Britain, all bat species and their roosts are legally protected, by both domestic and international legislation.

This means you will be committing a criminal offence if you:

- Deliberately capture, injure, or kill a bat.
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats.
- Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time)
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat.
- Intentionally or recklessly obstruct access to a bat roost.

Licensing
Licenses to permit illegal activities relating to bats and their roost sites can be issued for specific purposes and by specific licensing authorities in each country. These are sometimes called 'derogation licenses' or 'European Protected Species' licenses and are issued under the Habitats Regulations. It is an offence not to comply with the terms and conditions of a derogation Licence. If you carry out work affecting bats or roosts without a Licence, you will be breaking the law.

Who needs to take particular note of the legislation?

- Property owners/householders who have a bat roost in their property.
- Woodland owners, arboriculturalists and foresters.
- Pest controllers.
- Planning officers & building surveyors
- Architects, property developers, demolition companies, builders and roofers.

Which legislation is relevant for bats and roosts?
In England and Wales, the relevant legislation is the Wildlife and Countryside Act (1981) (as amended); the Countryside and Rights of Way Act, 2000; the Natural Environment and Rural Communities Act (NERC, 2006); and by the Conservation of Habitats and Species Regulations (2010).

In Scotland, the key legislation that applies is the Conservation (Natural Habitats &c.) Regulations 1994 (as amended).

In Northern Ireland bats are listed under Schedule 2 of the Conservation (Natural Habitats etc) Regulations (Northern Ireland) 1995 and in the Republic of Ireland, under Schedule 5 of the Wildlife Act 1976 and Schedule 1 of the European Communities (Natural Habitats) Regulations 1997.

Defenses include:
Tending/caring for a bat solely for the purpose of restoring it to health and subsequent release.
Mercy killing where there is no reasonable hope of recovery, (provided that person did not cause the injury in the first place - in which case the illegal act has already taken place).

Penalties on conviction –
People committing bat crimes can face six months' imprisonment and/or unlimited fines.
Additionally, any profits made as a consequence of not following lawful process can be confiscated and items used to commit the offences such as vehicles, plant or machinery can be forfeited.

Under National Planning Policy Framework (2012), it is recommended that the re-development scheme for any site, protected species, such as bats should be a material consideration in planning applications. This has implications for bat foraging areas as well as their roosts.

The National Planning Policy Framework (NPPF) 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 development may affect them.

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 dependent upon built structures for survival and that roosts can be easily incorporated into existing and new developments/conversions to benefit these species.

Breeding Birds

All wild birds are protected under the *Wildlife and Countryside Act 1981* (as amended), whilst they are actively nesting or roosting. Section 1 of this Act, makes it an offence to kill, injure or take any wild bird, and to intentionally take, damage, or destroy the nest of any wild bird while that nest is in use or being built. It is also an offence to take or destroy any wild bird eggs.

Barn Owl

Barn owls are listed on Schedule 1 of the *Wildlife and Countryside Act 1981* which gives them special protection.

It is an offence, with certain exceptions, to:

- Intentionally kill, injure, or take (handle) any wild barn owl.
- Intentionally take, damage or destroy any wild barn owl nest whilst in use or being 'built' (barn owls do not 'build' a nest but may make a nest scrape.
- Intentionally take or destroy a wild barn owl egg.
- Have in one's possession or control a wild barn owl (dead or alive), or egg, (unless one can show that it was obtained legally).
- Intentionally or recklessly disturb any wild barn owl whilst 'building' a nest or whilst in, on, or near a nest containing eggs or young.
- Intentionally or recklessly disturb any dependent young of wild barn owls.

Hedgehogs.

Hedgehogs are protected by British law under Schedule 6 of the Wildlife and Countryside Act 1981, making it illegal to kill or capture them using certain methods. Similar protection exists in Northern Ireland under Schedule 6 & 7 of the Wildlife Order 1985. They are also protected in Britain under the Wild Mammals Protection Act (1996), prohibiting cruelty and mistreatment.

They're listed as a Species of Principle Importance in England under the Natural Environment and Rural Communities (NERC) Act 2006 Section 41, in Wales under the Environment Act 2016, and in Scotland under the Nature Conservation Act 2004. Similarly, hedgehogs are on the Priority Species List for Northern Ireland.

These laws make hedgehogs a material consideration for Local Planning Authorities (LPAs) during the planning process.

Developments should also be consistent with Local Plans (LPs) and Neighbourhood Area Plans (NAPs), some of which may explicitly refer to hedgehog conservation and connectivity of the landscape.

APPENDIX 2: Bat Roost Suitability

Bat Conservation Trust

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.

Potential suitability	Description	
	Roosting habitats in structures	**Potential flight-paths and foraging habitats**
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).
Negligible[a]	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions[b] 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 and not a classic cool/stable hibernation site, but could be used by individual hibernating bats[c]).	Habitat that could be used by small numbers of bats as flight-paths 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 with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions[b] and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is 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 flight-paths 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 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[b] and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths 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 Negligible is defined as 'so small or unimportant as to be not worth considering, insignificant'. This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute).

b For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

c 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.*, 2016 and Jansen *et al.*, 2022). Common pipistrelle swarming has been observed in the UK (Bell, 2022 and Tomlinson, 2020) and winter hibernation of numbers of this species has been detected at Seaton Delaval Hall in Northumberland (National Trust, 2018). 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 prominent buildings in the landscape, urban or otherwise.

In accordance with Table 4.1 of
Bat Surveys for Proffessional Ecologosts: Good Practice Guidelines (4th Edirition) Collins J. (ed 2023)

APPENDIX 3: Bat Survey Timings and Frequency.

Table 7.1. Recommended timings for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees where other methods such as PRF inspection are not possible, but unlikely to give confidence in a negative result). To be used in tandem with Table 7.2.

Low roost suitability or PRF-I	Moderate roost suitability	High roost suitability or PRF-M
May to August (structures) No further surveys required (trees)	May to September[a], with at least one of surveys between May and August[b]	May to September[a], with at least two of surveys between May and August[b]

a September surveys are both weather- and location-dependent. Conditions may become more unsuitable in these months, particularly in more northerly latitudes, which may reduce the length of the survey season. September surveys are likely to miss maternity roosts due to dispersal before this time, but may pick up mating roosts.

b Multiple survey visits should be spread out to sample as much of the recommended survey period as possible; it is recommended that surveys are spaced at **least three weeks apart**, preferably more. Survey timings **should consider the prevailing conditions in the year of survey, which will vary geographically**. In years with a cold spring, the surveys should not be started in early May or all completed in May. The surveys should maximise the possibility of detecting maternity roosts, which can switch roosts between pregnancy and lactation, and the **optimum coverage includes the pre-parturition, post-parturition and mating periods**.

Table 7.2. 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 or PRF-I	Moderate roost suitability	High roost suitability or PRF-M
One survey visit. One dusk emergence survey[a] (structures). No further surveys required (trees).	Two separate dusk emergence survey visits[b].	Three separate dusk emergence survey visits[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 para 5.2.44). 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 three weeks apart, preferably more.

In accordance with Tables 7.1 and 7.2 of
Bat Surveys for Porfessional Ecologists: Good Practice Guideline (4th Edition) (Collins. J. (ed) 2023).

APPENDIX 4: Bat Tree Assessment Criteria

Criteria for Assessment of Trees in accordance with Category 1 to 3 as defined in Table 8.4 of *Bat Surveys: Good Practice Guidelines 2nd Edition* (Hundt, L. 2012).

CATEGORY	DESCRIPTION	CRITERIA
Known or Confirmed	Confirmed roost	Confirmed roost Evidence found that indicates tree/tree features are being used by bats. Droppings found at the base of the tree, below a cavity. Bats heard 'chattering' inside a feature on a warm day or at dusk Bat(s) observed flying from or to a feature.
1*	Very high value	Trees with multiple, highly suitable features capable of supporting larger roosts. Features of particular significance, suitable for high priority roosts such as maternity roosts, used by large numbers of bats, offering conditions that are uncommon or rare in the local area. Features such as large cavities, extensive branch or trunk splits, also including multiple features in the same tree that offer a diversity of opportunities. Features may also include dense ivy.
1	High value	Trees with definite bat potential supporting fewer suitable features than category 1* trees or with potential for use by single bats. Features which provide a more secure form of roost for small groups of bats and individuals, but may still be quite common types of feature, such as small cavities, minor splits or sparse ivy cover.
2	Moderate value	Trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or the tree supports some features which may have limited potential to support bats. A tree which on close inspection the potential roost positions are in some way not ideal. They could be upward facing or holes very low down or cluttered by adjacent branches.
3	Low/Negligible value	Trees that have no features which could be used by bats for roosting (Usually young trees).

APPENDIX 5: Planning Considerations

When considering each planning application, the presence of protected species, such as those listed above, is a material consideration which must be fully considered by the Local Authority when granting planning permission. If a licence from Natural England is required, then prior to issuing any planning consent, the local planning authority will need to be satisfied that there is no reason why such a licence would not be issued. Therefore, in reaching the planning decision the local planning authority will need to have regard to the requirements of the Conservation of habitats and Species Regulations 2010.

The three licensing tests given in the Regulations must be considered. In summary, these are that:

1. The development is required for the purpose of:

- preserving public health or public safety,
- for other imperative reasons of over-riding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment.
- for preventing serious damage to property.

2. There is no satisfactory alternative.

3. The proposal will not be detrimental to the maintenance of the population of the species at a favourable conservation status.

All necessary information would need to be provided to the planning authority as part of the planning application in order to address the above tests.

The Natural Environment and Communities Act (NERC Act) 2006 extended the biodiversity duty set out in the Countryside and Rights of Way (CROW) Act to public bodies and statutory undertakers to ensure due regard to the conservation of biodiversity. The Duty is set out in Section 40 of the Act, and states that:

"Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity"

The Duty applies to all local authorities, community, parish and town councils, police, fire and health authorities and utility companies. Section 41 (S41) of this Act (the 'England Biodiversity List') also requires the Secretary of State to publish a list of habitats and species that are of principal importance for the conservation of biodiversity in England. This list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40(1) of the Act.

Also, Local Authorities must follow the National Planning Policy Framework (NPPF) which provides guidance on the interpretation of the law in relation to wildlife issues and development. For each development proposal considered by the Local Planning Authority the NPPF states that the authority must aim to conserve and enhance biodiversity. 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.

APPENDIX 6: Bats: What to do should bats be found during construction or demolition.

All of the UK's bats and their roosts, are protected by law, (see Appendix 1), so it is important to understand these laws**,** if you are planning any building or remedial work that may affect or disturb a bat roost. The relevant statutory authority should be initially contacted for advice**.**

Having bats roosting within a building, does not necessarily mean that work cannot be carried out. What it does mean is that the work will need careful consideration, especially in terms of time and materials, so that the area can continue to be used by both bats and people. Therefore, the earlier in the process that bats are considered, the less disruption to building plans there will be.

If at any point during either new building work, renovation work, or demolition, one or more bats are found, then all work being undertaken by contractors should stop immediately. All working machinery and contractors should be removed from the area where the bats have been found, and advice sought immediately from one of the following, on how to proceed while causing minimal disturbance to bats.

Advice can either be provided by a professional licensed ecological consultant - Echo Calls Bat Surveys on 07745 268815, the Bat Conservation Trust on 0345 1300 228, or from your Statutory Nature Conservation Organisation (SNCO) , or from Natural England on 01270 754 000.

Depending on the advice given, a licensed bat worker, or suitably qualified Natural England approved representative, will then be sent to site to liase with the site manager, and Natural England itself. Depending on the advice given, actions will be recommended that may include the safe removal of the bat by the nominated person, only where written or verbal permission has been gained by Natural England.

Works will recommence when Natural England are satisfied that the risk to bats has been removed. If, however, it is determined that the proposed work on site contains more risk to bats than was originally thought, then it is probable that further work will only proceed, under a Natural England Development Licence.

If a bat is found under a tile, slate, flashing or any other covering material, work must stop immediately. If the bat does not fly out immediately, then the area around the roost must be carefully covered over, to protect the bat from the elements and further disturbance, leaving a small gap for bats to escape voluntarily. At this point, advice must be sought as mentioned above. The materials used to cover the occupied bat roost, must be free from liquid, oil, grease and other contaminants.

It is recommended that the handling of bats be avoided wherever possible, but if it absolutely necessary, then to avoid a bat being harmed, gloves must be worn whilst handling the bat. It should be carefully caught, placed in a cardboard box with air holes in the lid, and a small container containing water. The box should then be kept in a very quiet, dark area, away from further disturbance, whilst awaiting the arrival of the licensed bat worker, or Natural England approved representative.

Failure to do any part of this could result in a criminal offence.

APPENDIX 7: Bats: Types of Bat Box.

The aim of any mitigation is to ensure that any work is carried out in a manner that avoids harm or significant disturbance to bats, and also to create new roosting opportunities for bats both during and after the development.

Schwegler 1FD boxes are to be erected to larger trees located along the edges of the site. This type of bat box is a “general all-rounder” and is suitable for all types of bats.

These boxes are to be erected as recommended by the Bat Conservation Trust guidelines which state that

- Ideally, erect the boxes facing so they face in different directions, to provide a range of temperature conditions. For example, boxes facing from south-east to south-west allow the sun to fall on each box for part of the day. During very hot days a south-facing box may overheat, but the other boxes should have some shade during the day.
- Bat boxes should be located close to a linear vegetation feature such as a tree line or hedgerow or to lines of buildings. Some bat species use these features for navigation between their roosting site and feeding ground and to avoid flying in open and exposed areas.
- Ensure that tree branches or other items will not impede the bats’ approach to the box – clear away underneath the box so the bats can land easily before crawling into the box.
- Boxes should be erected at a height of approximately 4m above ground level.

Schwegler 1FD Bat Box

This Schwegler 1FD bat box has been developed specifically for smaller bats. The interior and the type and size of the entrance hole match the requirements of smaller species. It features a special layout inside the domed roof, an increased interior height, and two grooved internal wooden front panels with precise spacing between them.

This model has proved highly effective as a nursing area.

Occupants: Small bats such as the Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), Daubenton`s Bat (Myotis daubentonii) and Common Long-eared bat (Plecotus auritus).

APPENDIX 8: Nesting Birds: Mitigation and Compensation Measures.

Birds are declining throughout the country due to loss of roost and nesting places, and as the development may disturb both robin, swallow and wren nesting potential on the site, artificial nests are to be erected to compensate for this possible loss. The erection of artificial nests around the complex, will provide alternative sites for all three species of bird, and make a positive contribution to their conservation.

Making a nestbox suitable for wrens, robins and other box nest builders

What you need

Natural nest holes do not come in standard sizes, so use these dimensions only as a guide. Any plank or sheet of about 15 mm thick weatherproof timber is suitable. However, do not use CCA pressure-treated timber, since the leachates may harm birds. Cut each section as per our plan, which you can download by clicking on the link to the right.

Dimensions

The plan gives measurements for a small and a large box. Use only the first or the second figure throughout. For starlings and great spotted woodpeckers, use the dimensions for the large box; all the others need the small one.

The bottom of the entrance hole must be at least 125 mm from the floor of the nestbox. If it's less, young birds might fall out or be scooped out by a cat. The inside wall below the entrance hole should be rough to help the young birds to clamber up when it's time for them to leave.

Putting it together

Drill drainage holes to the base of the box, and use galvanised nails or screws to assemble. It's always best to leave the box untreated. As it weathers, it will blend into its surroundings. Softwood boxes can be treated with selected water-based preservatives, which are known to be safe for animals, such as Sadolin. Apply it only to the outside of the box, and not around the entrance hole. Make sure the box dries and airs thoroughly before you put it up.

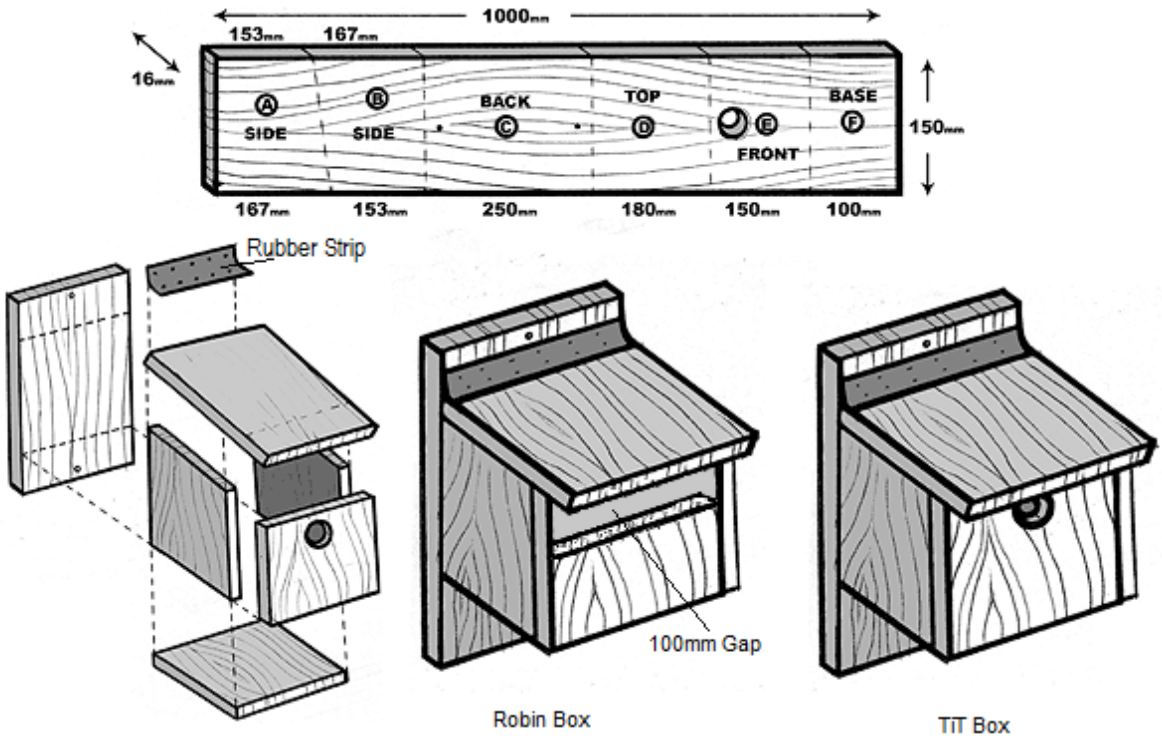
A woodpecker box should be filled with a block of balsa wood, rotting log or wood chips – woodpeckers like to excavate their own nesting cavities.

Do not nail down the lid as you will need to clean out the box in the autumn. Attach the lid with a brass or a plastic hinge that will not rust, or hinge it with a strip of leather or rubber (an old piece of bicycle inner tube will do). Fasten it down with a good catch.

How big does the hole need to be?

The entrance hole size depends on the species you hope to attract:
25 mm for blue, coal and marsh tits
28 mm for great tits, tree sparrows and pied flycatchers
32 mm for house sparrows and nuthatches
45 mm for starlings

The small box with 100 mm high open front may attract robins, or pied wagtails. A wren would need a 140 mm high front panel, while spotted flycatchers and blackbirds prefer a low 60 mm front to the box.


1000mm
153mm
167mm
16mm
A
SIDE
B
SIDE
BACK
C
TOP
D
E
FRONT
BASE
F
150mm
167mm
153mm
250mm
180mm
150mm
100mm
Rubber Strip
100mm Gap
Robin Box
TIT Box

APPENDIX 9: Hedgehog – Eco-plate Hedgehog House.

Eco-plate Hedgehog House

Specifications			
Width (cm)	Height (cm)	Length (cm)	Tunnel Length (cm)
60	35	46	36

Hedgehogs were once commonly seen in most UK gardens; now however a loss of hedgerows and agricultural intensification has resulted in a 30% reduction in populations in the last ten years. Hedgehogs are an important indicator species, and a decline in their numbers is often symptomatic of a far bigger problem with ecosystem health.

There are many ways that you can help support this species including providing them a home which is predator proof, secure home.

This hedgehog box was designed in collaboration with the Egelstichting (the Dutch Hedgehog protection society). This box is made of Eco-plate, a material similar in density to plywood, but produced from recycled car seats sourced from reputable suppliers, and grown from native stock.

This environmentally friendly material is weather resistant and very durable. The entrance tunnel is hidden inside the house to make it more difficult for predators to reach hedgehogs inside the house.

To make it habitable, part-fill the nest chamber with dried leaves. Place the box in a secluded corner and cover with soil or leaves to boost the chances of the box being used.

It would give a hedgehog daytime shelter between April and October, and will also allow them the space to hibernate during harsh winter months between November and mid-March.

The lid can be easily removed for cleaning, however, do not disturb the box while it is occupied.

APPENDIX 10: Hedgehog Highway.

Why do hedgehogs need holes in fences?

Hedgehogs travel around one mile every night through our parks and gardens in their quest to find enough food and a mate.

One of the main reasons hedgehogs are struggling in Britain is because our fences and walls are becoming more and more secure, reducing the amount of land available to them.
We can make their life a little easier by removing the barriers within our control hedgehogs can travel 2km (one mile) in a single night as they search for food and shelter, but sadly our garden fences and walls limit their movement.

Making small 13cm hedgehog highways through fences and walls, would allow hedgehogs to safely pass through into our gardens, and are a vital way to safeguard the future of the species.

Hedgehog Highways

A 13cm by 13cm square hole is sufficient for any hedgehog to pass through, no matter what the wall or fence is made from. This will be too small for pets and dogs to pass through to pursue hedgehogs.

- Remove a brick from the bottom of the wall.
- Cut a small hole in your fence if there are no gaps.
- Dig a channel underneath your wall, fence or gate, to obtain enough depth.

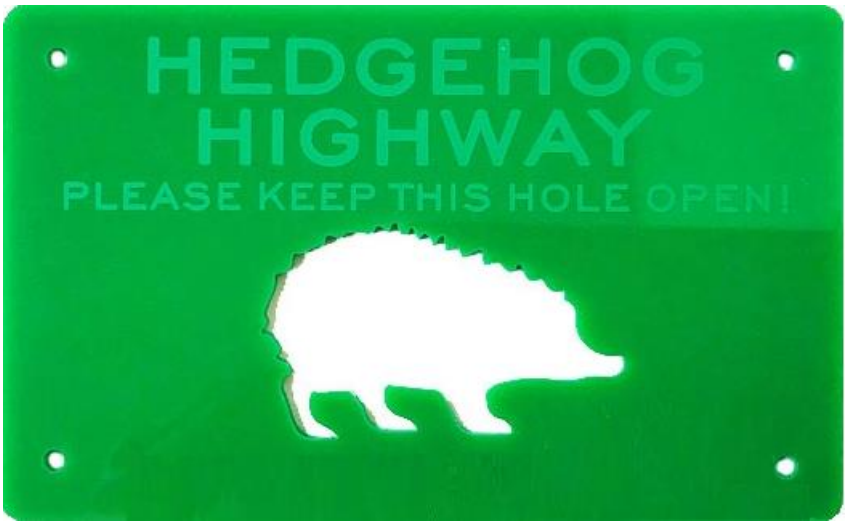
- A 13 cm diameter circular hole through brickwork creates a tunnel.

- Similarly, a 13cm diameter drain pipe would suffice through vertical fencing

If you are feeling particularly ambitious then the ideal option would be to swap your walls and fences for hedges. This would provide shelter, food and a route into an out of your garden, not to mention the benefits it would bring to other wildlife such as birds and bees.

Label your Hedgehog Highway

A “hedgehog Highway” label cut from recycled plastic, can be pinned above your hedgehog hole to ensure it is not blocked by anyone accidentally.



APPENDIX 11: Bats and Lighting.

The detailed lighting plan on-Site should be functional and directional and in line with current guidance (Bats and Artificial Lighting at Night, August 2023). Habitat retained, enhanced or planted for roosting, foraging and/or commuting bats will need to be considered within a suitable lighting plan in order to be used by bats. Where designing with bats in mind:

- Light emitting diodes (LED) should be used, as these typically feature no UV component and as a result are less attractive to invertebrates and less disturbing to bats;
- Only luminaires with 0 % upward light ratio should be used and fitted on the horizontal to avoid excessive up-lighting, back lighting and light spill onto boundary hedgerows and trees;
- A warm white spectrum (ideally under 2700 Kelvin) should be used in order to reduce blue light component, therefore reducing the number of invertebrates attracted to the lights;
- Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill;
- The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered, although this has certain drawbacks and should only be used as directed by a lighting professional;
- Column heights should be carefully considered to minimise light spill;
- Any external security lighting should be set on motion-sensors and short (e.g., 1 minute) timers;
- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats;
- As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed;
- Where habitat needs to be unlit (e.g., important foraging and commuting corridors/roost sites), illuminance should be below 0.2 lux on the horizontal plane and below 0.4 lux on the vertical plane.