



Report Type: Ecological Appraisal & Bat Activity Report

Client Name: Steggles

Site Address: Cedar Hall
Gresford
Wrexham
LL12 8RG

Report Reference: 20-12 323.3R

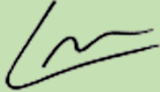
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The report should be read in its entirety

Questions arising from the survey report should be directed to the author of the report who will be pleased to clarify any technical issues raised.

Whilst the surveyors make every reasonable effort, Greenscape Environmental Ltd cannot guarantee that all protected species have been identified and survey results are definitive. Many species are cryptic and transitional in habit.

Reports are considered valid for one year for planning purposes, after which time further survey information may be required.

Greenscape Environmental Ltd can provide advice and support for recommendations and planning conditions.

The use of this report or survey data for any form of formal submission to an NGO or other authority implicitly implies acceptance of the terms and conditions.

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1 Executive Summary

1.1 Purpose of the Report

Greenscape Environmental Ltd was commissioned by Raise Architects on behalf of the client, Ms L Steggles, to undertake a preliminary ecological appraisal of the stable building at Cedar Hall to provide supporting information for a planning application for the conversion and extension of a stable building to a dwelling.

The survey report has these principal aims:

- To provide an initial assessment of the ecological value of the site in local context.
- To provide details of activity surveys that were conducted.
- To identify potential ecological constraints relating to the development, and recommend measures to avoid, reduce or manage negative effects, and to provide a net ecological gain.

1.2 Methodology

The appraisal included a desktop study and a site visit undertaken at the site, OS grid reference SJ34415501 on 15th December 2020 by B Jones and C Sheil. Bat activity surveys were then conducted throughout May and June by B Jones, C Sheil, L Maggs, R Owens and R Wilson.

1.3 Key Impacts and Mitigation Measures

The desktop study included a search for nearby designated sites and previously recorded protected species. Considered of potential significance for this site was bats, badgers and nesting birds.

The site comprises a stable building, a courtyard of hardstanding and a garden of amenity grassland and ornamental planting. Boundaries include walls and fences.

Bat droppings were found throughout the stables and are indicative of a brown long-eared bat roost. Bat activity surveys identified a consistent roost of two brown long-eared bats, and transient day roosts of one common pipistrelle and one soprano pipistrelle. **The construction of the detached garage and the extension can begin once planning permission has been granted, but work to convert or alter the space within the existing building will require a bat mitigation licence from NRW.**

There is anecdotal evidence of badgers in the wooded area to the north, and droppings that may have been left by badger were found in the garden. **The development is to be done under a method statement and an ECoW is to be employed to oversee works and conduct regular site checks.**

Evidence of nesting birds has been found in the stables and potential nesting habitat was found in the trees and ornamental planting. Removal of vegetation and the sealing of the stables is to be done outside of bird nesting season which is February to August inclusive.

1.4 Conclusion

It is recommended that the biodiversity value of the site will be enhanced post-construction with the inclusion of bat and bird boxes. The client has also agreed that the landscaping will also be improved by planting new native species hedgerows and trees in the garden.

The method statements provided in section 6.3.2, 6.4.2 and 6.5.2 of this report will be followed, and work will be conducted under suitable licence at a suitable time of year to minimise potential impacts.

Table 1.1. Timing of Works

Action	Timing	Justification
Update phase 1 survey	After 18 months from survey issue date	Ecological features can change and develop over time
Construction of garage	As soon as planning permission is granted	This will not impact known bat roost areas and so has no timing limitation
Construction of footings and ground floor of extension	As soon as planning permission is granted	This will not impact known bat roost areas and so has no timing limitation
Construction of bat loft over southern point of existing building	As soon as planning permission has been granted	This will provide ongoing roost space for bats in the area once the existing roost is no longer viable
Breaking through from extension to existing building and sealing existing building	After licence is obtained, September – April inclusive	This is when bats and nesting birds are least likely to be present
Removal of vegetation in garden	September to January inclusive	This avoids bird nesting season

2 Introduction

This report has been compiled by Chloe Sheil MZool (Conservation) who has 2 years' experience conducting ecological appraisals. It has been reviewed in line with Greenscape's Quality Management System.

For full details of surveyors and licences please see Appendix A.

2.1 Project Background

Greenscape Environmental Ltd was commissioned by Raise Architects on behalf of the client, Ms L Steggles, to conduct a survey to determine the presence of protected species and potential for the damage or destruction of habitats of value. This forms part of the planning application for the conversion and extension of the stable building at Cedar Hall.

2.2 Purpose of the Report

This report aims to:

- Identify the key ecological constraints to the proposed development.
- Inform planning to allow significant ecological effects to be minimised or avoided where possible.
- Allow any necessary mitigation or compensation measures to be developed following the mitigation hierarchy.
- Identify any additional surveys that may be required to inform the assessment.
- Identify the opportunities offered by a project to deliver ecological enhancement under NPPF Section 15.

The Local Planning Authority will require further information regarding bats because the building is within 200m of woodland and there are records in the area.

2.3 Site Context and Location

The site is located in the northwestern periphery of Gresford, a village to the north of Wrexham, OS grid reference SJ34415501. It is set in a rural environment, the rest of the village is to the east, open fields are to the south and north, with the A483 main road running southwest-northeast to the northwest of site. There is good connectivity through the nearby wooded area along the railway to the north

3 Methodology

Broad methodologies for data collection and interpretation were informed by guidance outlined in CIEEM (2017) – Guidelines for Preliminary Ecological Appraisals. Full details can be found in Appendix B.

3.1 Desk Study

The desk study provides contextual information such as the site's proximity to designated areas and known records of protected or notable species.

3.2 Field Survey

3.2.1 Date and Survey Conditions

Table 3.1. Survey conditions

Date	Time Start – End (Sunset/rise)	Structure	Equipment Used	Weather
15/12/2020	10:00-12:00	Stables	Strong torch, Camera	6°C, no wind, no rain
Comments	Two surveyors used: Ben Jones (NRW bat licence: S088669-2) and Chloe Sheil			
18/05/2021	20:50-22:45 (21:10)	Stables	Torches, Camera, Anabat Walkabout, Wildlife Acoustics Echo Meter 1 & 2 Pro	11-10°C, <10% cloud cover, waxing crescent moon, no wind, no rain
Comments	Three surveyors used: Ben Jones, Chloe Sheil and Rebecca Owens			
09/06/2021	02:50-04:55 (04:47)	Stables	Torches, Camera, Anabat Walkabout, Wildlife Acoustics Echo Meter 1 & 2 Pro	11°C throughout, no cloud cover, new moon, F0-1 wind, no rain
Comments	Three surveyors used: Ben Jones, Chloe Sheil and Logan Maggs			
30/06/2021	21:30-23:00 (21:42)	Stables	Torches, Camera, Anabat Walkabout, Anabat SD2, Wildlife Acoustics Echo Meter 2 Pro	16-14°C, no cloud cover, ½ moon, F0-1 wind, no rain
Comments	Three surveyors used: Ben Jones, Chloe Sheil and Rebecca Wilson			

3.2.2 Habitats

The level of survey is aimed to identify field signs of, or habitats with the potential to support protected species and therefore assist in the determination of site value.

3.3 Species Survey

Features on site were assessed for potential for bat roosts, foraging and commuting. Phase 2 surveys were conducted to confirm the presence/absence of any roosts and ascertain the nature of them. These were conducted in accordance with Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition, BCT, Collins (ed.) (2016).

Badger surveys were conducted using guidance from Scottish Natural Heritage commissioned Report No. 096 (2003).

Features on site were assessed for potential for nesting birds.

The terrestrial habitats at the application site were surveyed and assessed with respect to suitability and potential value for great crested newts.

3.4 Constraints of the Survey

All areas were accessible for this survey. It was conducted at a suboptimal time of year for the assessment of bat roosts, but this was not considered a constraint because bats will leave evidence that can be seen year-round.

The internal search revealed that the buildings had not been subjected to any form of specific cleaning and was in a natural redundant state.

The identification of calls and species using sonogram analyses are dependent on the clarity of the sonogram recording, which may be affected by the distance from the bat and background noise. Species of *Myotis* bats may only be identified to genus level on the basis of the inherent difficulty in distinguishing between species from their echolocation calls alone.

No other constraints have been identified.

4 Baseline Ecological Conditions

4.1 Nearby Features of Importance

MAGiC

Cedar Hall

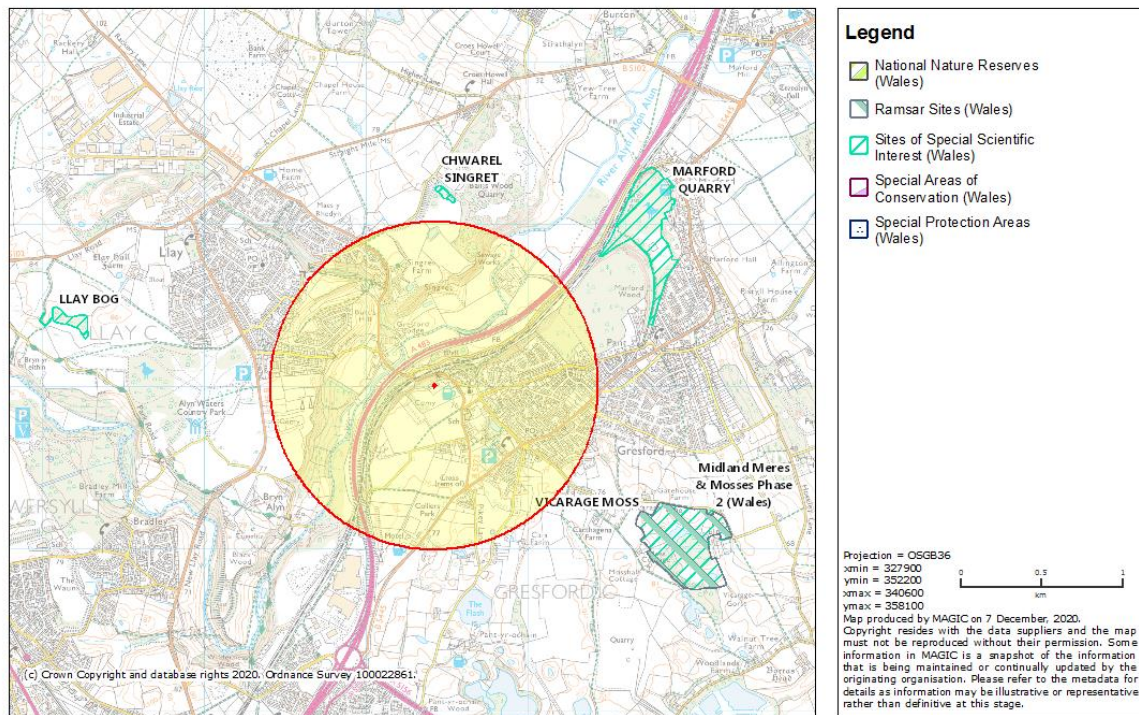


Figure 4.1. Identifying any designated areas near site, a 1km buffer is shown

The map from Natural England presented in Figure 4.1 indicated that the site is not within 1km of any designated areas; the nearest is 1.1km north.

4.2 Habitats on Site

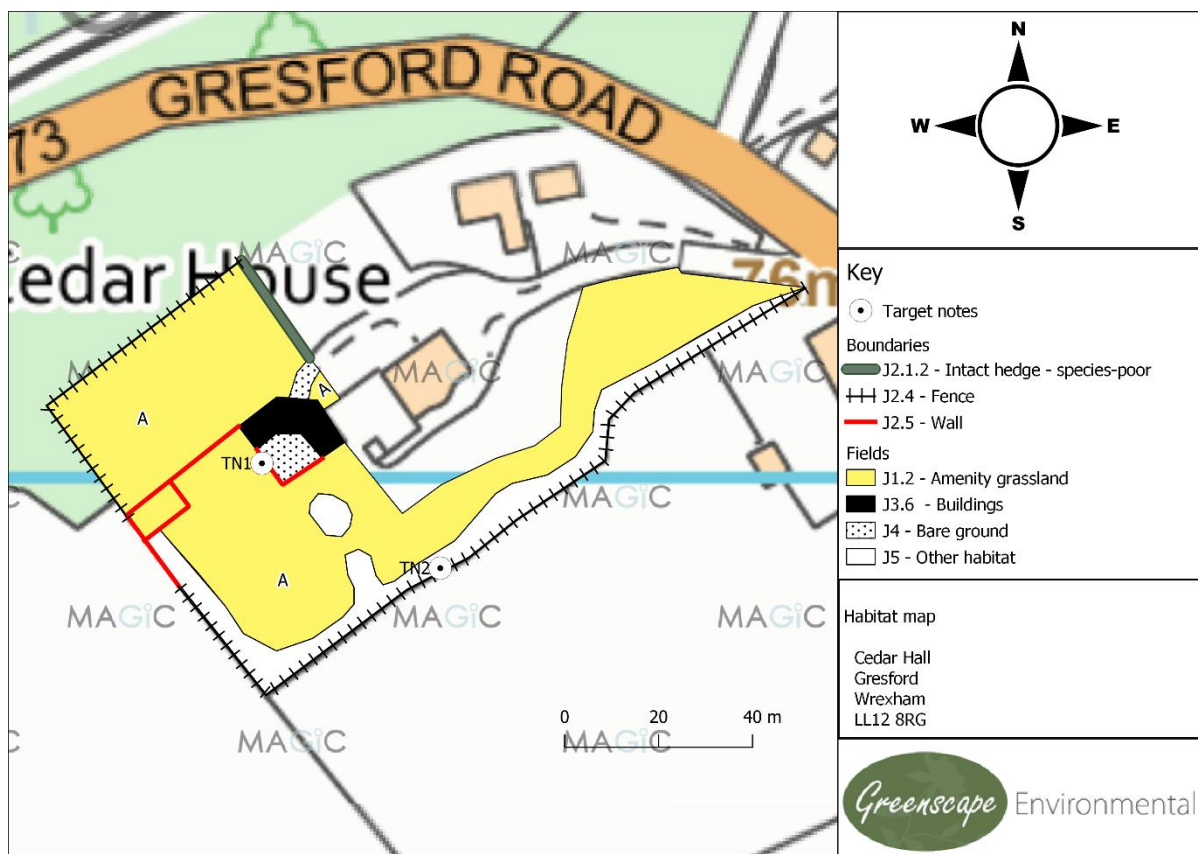


Figure 4.2. JNCC Habitat map of site

Table 4.1. Target Note Descriptions

Target Note	Description
TN1	Potential badger dropping
TN2	Sycamore tree with PRFs

The stables are built of red brick with parapet gable ends and has slate and clay tile roofs with skylights.



Figure 4.3. External view of stables from south

The stables have one continuous loft on the first floor. The roof is supported by both young and old wooden trusses and is lined mostly with modern breathable liner. Small remnant areas of bitumen hessian lining were found where the roof has been repaired.



Figure 4.4. Loft interior

A courtyard lies to the south of the stables. This comprises hardstanding formed of cobblestone.



Figure 4.5. Courtyard

The garden comprises mostly amenity grassland which is regularly mown. Species include dandelion (*Taraxacum officinale*) and creeping buttercup (*Ranunculus repens*).



Figure 4.6. Amenity grassland

The garden contains some ornamental planting and trees. Species include eucalyptus (*Eucalyptus* sp.), ash (*Fraxinus excelsior*) and sycamore (*Acer pseudoplatanus*).



Figure 4.7. Ornamental planting

The boundary running from the courtyard to the western boundary of the site is a wall of red brick.



Figure 4.8. Wall

The boundary along the northwest, southwest and southeast of the site is stockproof fence, behind the fence is an outgrown defunct hedgerow. Several mature trees in this boundary are to be assessed by a tree surgeon at a later date but will not require removal or alteration as part of this planning application.



Figure 4.9. Fence

The boundary in the north of the site is an intact hedgerow of cypress (*Cupressus x leylandii*).

4.3 Bats

4.3.1 Records

Records of bats within 1km include Daubenton's bat (*Myotis daubentonii*) approximately 550m away as recently as 2016. Pipistrelle (*Pipistrellus sp.*) have also been recorded approximately 1km away, as recently as 2003. Soprano pipistrelles (*Pipistrellus pygmaeus*) have been recorded as recently as 2012 over 500m to the southeast. Lesser horseshoe bats (*Rhinolophus hipposideros*) have been recorded in 2017 approximately 800m to the southeast.

4.3.2 Field Observations

Evidence of bats was found throughout the stable with larger piles in five different locations of the building indicating the presence of a roost. The droppings were consistent with those of brown long-eared bats. All were found under the ridge of the loft or on a windowsill on the ground floor.

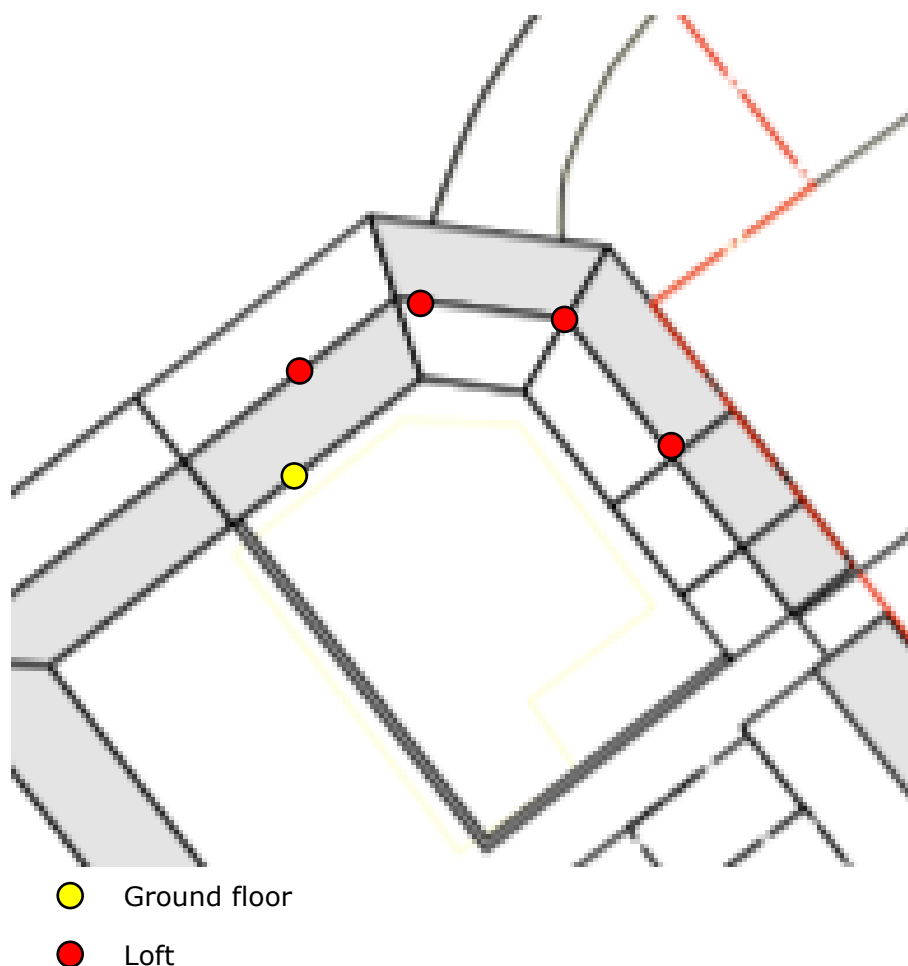


Figure 4.10. Locations of piles of droppings in stables

The droppings were of varying ages with many being less than a year old.



Figure 4.11. Pile of bat droppings

Some piles of droppings were located under timbers which were discoloured – a feature that suggests bats have roosted in place and natural oils discolour the wood.

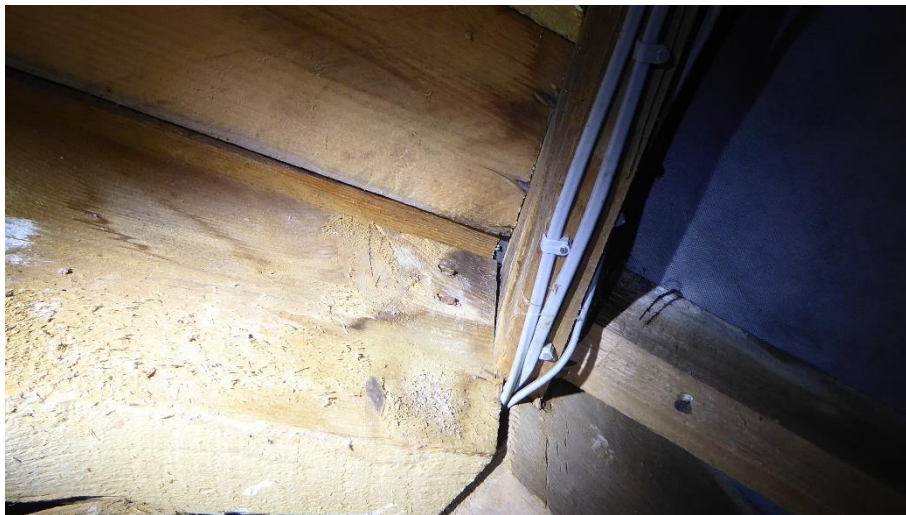


Figure 4.12. Staining under ridge

The client reported having a bat drop from a roost point above the garage door. This has been identified as a common pipistrelle from a photo, and naturally dispersed after being disturbed.



Figure 4.13. Area above garage door where bat fell from

A knot hole was found in a sycamore tree in the garden, at TN2. This hole was not fully visible from ground level, and so the depth of the hole is unknown. It is considered to offer low roost potential.

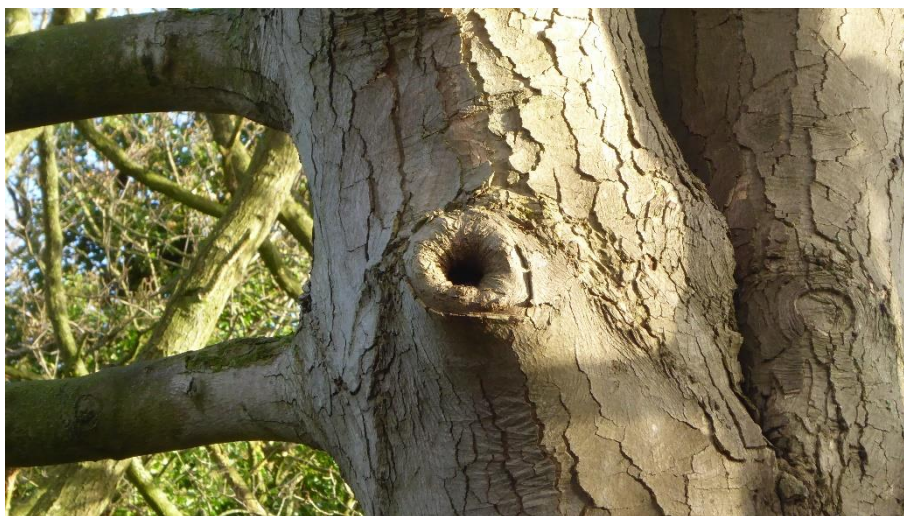


Figure 4.14. Knot hole in tree

4.3.3 Bat Activity Surveys

Bat activity surveys were conducted throughout May and June 2021. Full details of the surveys can be found in Appendix D.

A roost of two brown long-eared bats was identified in the upper floor. These bats were seen on all three surveys. Roosts of a single common pipistrelle and a single soprano pipistrelle were also identified, but each was only seen on one (separate) survey suggesting a transient day roost for both species.



Figure 4.15. BLE roost entry point



Figure 4.16. Soprano pip re-entry and common pip emergence point

4.4 Other Mammals

4.4.1 Records

Hedgehog (*Erinaceus europaeus*) have been recorded throughout Gresford, with one record less than 200m south from 2014, other records in the village are from between 2011 and 2014. Otter (*Lutra lutra*) have been recorded along the river Alyn to the northwest, with field signs found as recently as 2009, and living individuals seen in 2017. There are several records of badger (*Meles meles*) along the railway to the north and west, with the most recent being from 2017 approximately 850m southwest. A polecat (*Mustela putorius*) was seen less than 100m from site in 2018.

4.4.2 Field Observations

The site had several features for mammals, other than bats. The mulch and amenity grassland provide foraging.

There is anecdotal evidence that badgers have been seen on the garden around Cedar Hall and in the wooded area to the north. No evidence of setts was seen in the immediate surrounds. A mammal dropping was found next to the northwest boundary, at TN1. It contained berries and had no obvious smell. Although not dug into a latrine, it is possible that is it from a badger, but this is not certain.



Figure 4.17. Badger dropping

4.5 Birds

4.5.1 Records

Common passerine birds such as house sparrow (*Passer domesticus*), dunnoek (*Prunella modularis*) and starling (*Sturnus vulgaris*) have been recorded in the area in 2009. These records are all provided with only a 1km grid reference. Raptor species such as barn owl (*Tyto alba*) have been recorded in 2004, red kites (*Milvus milvus*) in 2019, and peregrine falcon (*Falco peregrinus*) in 2015. Ground-nesting birds such as skylark (*Alauda arvensis*) have been seen as recently as 2016.

4.5.2 Field Observations

The site had several features for birds. The building, hedge and trees provide potential nesting habitat. Evidence of nesting was found in the loft of the stables which contained moss. It is not clear which species it was made by.



Figure 4.18. Birds nest

4.6 Amphibians

4.6.1 Records

Records of amphibians include common frog (*Rana temporaria*) and common toad (*Bufo bufo*) have been recorded approximately 600m north in 2012. Great crested newts (*Triturus cristatus*) were recorded as recently as 2005 approximately 950m to the south.

4.6.2 Field Observations

The site had few features for amphibians. The amenity grassland is of negligible value to newts in their terrestrial phase. The mulch around the ornamental planting provides foraging and shelter so is of moderate value. The trees and hedge provide habitat for hibernation among the roots so are of high value. However, there are no ponds within 250m.

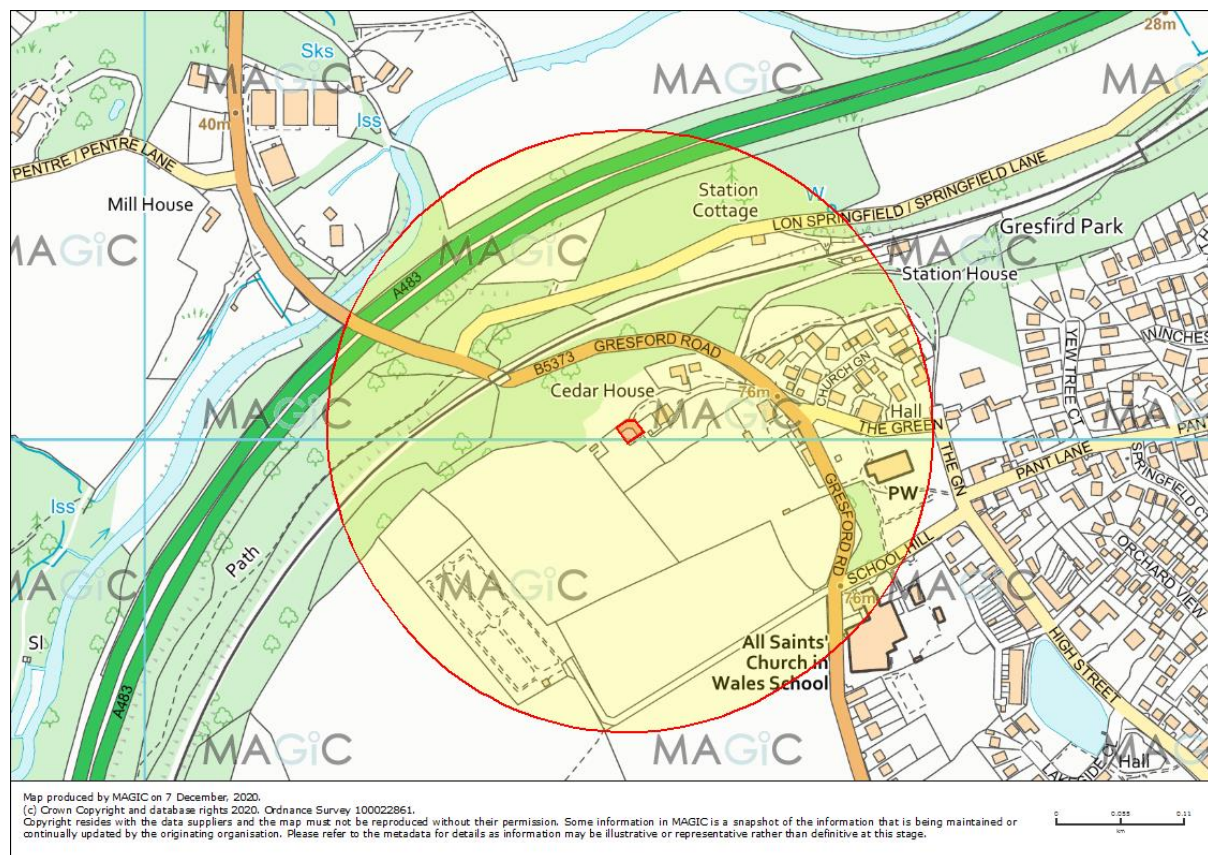


Figure 4.19. OS Map showing a 250m buffer around site, showing lack of ponds

4.7 Reptiles

4.7.1 Records

Records of reptiles in the vicinity include slow worm (*Anguis fragilis*) over 800m east in 2009, grass snake (*Natrix helvetica*) approximately 200m away in 2014, and an adder (*Vipera berus*) recorded in 2009 within 50m of site.

4.7.2 Field Observations

The site had no features for reptiles and no evidence was found.

4.8 Invertebrates

4.8.1 Records

Records of invertebrates within the area include autumnal rustic (*Ecliptopera silaceata*) in 2003, approximately 750m away, dingy skipper (*Erynnis tages*) in quarry land to the northeast in 2012 but records only have a 1km accuracy. White-letter hairstreak (*Satyrus w-album*) have also been recorded nearby, approximately 650m east in 2006.

4.8.2 Field Observations

No protected or BAP invertebrates were seen on site.

4.9 Invasive Species

4.9.1 Records

Records of invasive species within 2km include Japanese knotweed (*Fallopia japonica*) in 2016, approximately 750m from site, and Himalayan balsam (*Impatiens glandulifera*) along the river Alyn, most recently in 2015. American mink (*Neovison vison*) have been culled in the area between 2013 and 2014.

4.9.2 Field Observations

No evidence of invasive species was found.

The current plans are for the conversion and extension of the stable building at Cedar Hall. The access will be changed to be independent from that of the existing house which will require the removal of a small area of ornamental species and a strip of amenity grassland.

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Figure 5.1. Proposed Plans

Based on the findings of the bat activity surveys, a bat loft has been included in the plans totalling just shy of 21m³.

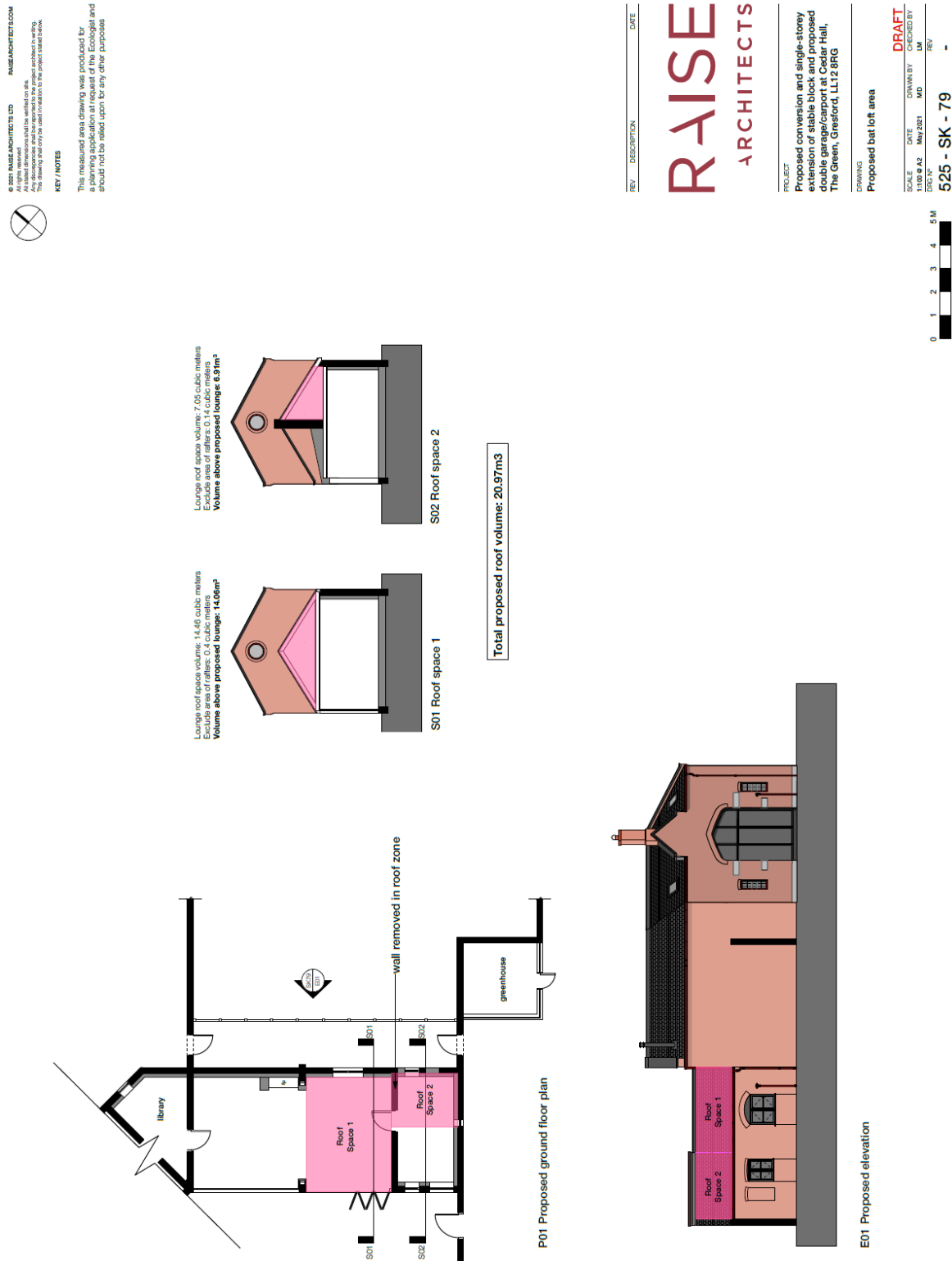


Figure 5.2. Plans showing bat loft area

6 Impacts, Enhancements and Mitigation

6.1 Nearby Features of Importance

Figure 4.1 shows that the nearest SSSI is over 1km away and is therefore unlikely to be impacted by the development as proposed.

6.2 Habitats on Site

6.2.1 Impacts

The development as proposed will see the loss of the stable as a bat roosting habitat, the loss of a small section of ornamental planting and amenity grassland for access.

Table 6.1. Summary of potential impacts on habitats recorded

Habitat	Value to Protected Species	Impact Without Consideration
Building	Evidence of bats	High negative impact on bats
	Evidence of nesting birds	Potential impact on nesting birds
Hedge	Potential bird nesting habitat	No negative impact
Ornamental planting	Potential bird nesting habitat	Potential impact on nesting birds
Hardstanding	No ecological value	No negative impact
Amenity grassland	No ecological value	No negative impact
Wall	No ecological value	No negative impact
Fence	No ecological value	No negative impact

6.2.2 Mitigation / Enhancements

In order to obtain an ecological net gain for the site, the remaining green spaces and site boundaries will require enhancement for local wildlife.

Hedgerows

It has been agreed with the client that the landscaping around the new access will include some hedge planting to enhance the area for biodiversity as well as provide screening.

Plants to use for landscaping and gapping-up of existing boundaries will include locally sourced native species. These will be planted in accordance with BS3936 (part 1, 1992, Nursery Stock, Specifications for trees and shrubs). Planting will occur between November and April depending on the timing of the development.

Table 6.2. New hedge planting scheme

Common Name	Latin Name	Distribution (%)
Hawthorn	<i>Crataegus monogyna</i>	35%
Blackthorn	<i>Prunus spinosa</i>	35%
Hazel	<i>Corylus avellana</i>	10%
Holly	<i>Ilex aquifolium</i>	10%
Wild Service Tree	<i>Sorbus torminalis</i>	10%

Table 6.3. Fruiting plant enhancement

Common Name	Latin Name
Crab Apple	<i>Malus sylvestris</i>
Wild Cherry	<i>Prunus avium</i>
Wild Pear	<i>Pyrus communis</i>

Trees

Trees to be used should be from the list below. These should also be native species, locally sourced where possible. Oak should particularly be encouraged because it supports a large diversity of invertebrates.

Table 6.4. Trees proposed for enhancement

Common Name	Latin Name
English Oak	<i>Quercus robur</i>
Sessile Oak	<i>Quercus petraea</i>
Lime	<i>Tilia cordata</i>
Rowan	<i>Sorbus aucuparia</i>
Silver Birch	<i>Betula pendula</i>

6.2.3 Monitoring

All habitat enhancements will be monitored post-development and any failing plants or features will be addressed as appropriate to maintain the value of the enhancement.

6.3 Bats

6.3.1 Impacts

Bat activity surveys confirmed the presence of a consistent roost of two brown long-eared bats. A single common pipistrelle and a single soprano pipistrelle were recorded on separate surveys, indicative of a transient day roost, though both bats used the same roost access point.

Without due consideration these roosts will be lost, with a risk of death or damage of bats.

Potential roost features were found at TN2. However, this tree is not to be affected by the development so no negative impact is expected.

6.3.2 Mitigation / Enhancements

The plans show a bat loft over "Lounge Area 2" and part of the "studio/gym". This loft will be set aside as the bat mitigation area to compensate for the loss of the existing roost and will form part of the mitigation licence from Natural Resources Wales, which will be applied for once planning permission has been granted.

The construction of the garage and the groundworks and lower section of the extension can commence once planning permission has been granted. Only when the extension involves breaking into the existing building will the licence be required to cover works, as this is when the existing roost conditions will be altered.

The licence will outline a working method statement for the conversion of the stables, such as the one below.

EPSL Working Method Statement

1. Construction will need to follow a rigid method statement. It will need to be conducted under a European Protected Species Licence (EPSL) from Natural Resources Wales (NRW).
2. A suitably licensed ecologist will be employed as an Ecological Clerk of Works (ECoW) to oversee works in areas sensitive to bats and provide expert advice.
3. A toolbox talk will be provided by the ECoW. The developer and the contractors will be made aware that there is a possibility that bats may be found during works and will be advised to work in a way to ensure bats are not harmed during work in areas sensitive to bats such as the known access points. They will be provided with a simple emergency procedure to follow if bats are found at any stage of the work on site. It will be ensured that the method statement is retained on site at all times.
4. A pre-commencement check will be conducted by the ECoW using a strong torch and borescope where appropriate.
5. Bats will always be allowed access to an undisturbed area during works.
6. The work around the bat roost area will occur when bats are least likely to be present, from October to March.
7. The ECoW will be present on site when work is being conducted in the area of the bat roost, particularly around the ridges, gables, hips, valleys and edges.

8. If a bat is found when the ECoW is not present, work will stop immediately and the ECoW contacted for advice.
9. The bat can only be handled by the ECoW or authorised person unless it is in immediate danger. The bat must be carefully placed in a well-ventilated lidded box with a small container (i.e. a plastic bottle lid) with water in it. The container must be kept in a quiet and safe place.
10. Care should be taken to avoid rousing the bat whilst transferring to a suitable location, such as a suitable roost box or alternative roost space that provides a safe, quiet environment with a stable cool temperature and relatively high humidity.
11. If the bat is underweight or injured it will be cared for by an experienced bat carer until such time that it is strong enough to be released into a suitable alternative replacement roost on site.
12. The bat compensation will be created following the instructions in section 6.3.2 of this report, which will also be included in the EPSL and the client will agree that any bat box erected must stay in place for a minimum of five years post-development.
13. The removal of the roof will not take place if the temperature has been below 6°C for four consecutive days and nights.
14. Once the building has been reroofed, bat access will be limited by sealing all doors and windows, thus reducing the potential for bats to re-enter where they are not expected.

Artificial Habitats

It is recommended that permanent provision be made for roosting opportunities for bats with the inclusion of an integral bat box in the new extension. This will be erected at a height of 3-4 m and in a southerly, westerly or easterly facing direction.

Enclosed Bat Box (B and C)

- Designed specifically for the pipistrelle bat
- Available in all brick types
- Discrete home for bats
- Various sizes
- Several roosting zones are created inside the box
- Bats are contained within the bat box itself
- Maintenance free with entrance at the base
- Ideal for new build & conservation work



Bat Box B



Bat Box C

Eco Habitats for Bats	Sizes (mm)	Durability
Bat Box Type A	215 x 65	F2 S2 – Fully Frost Resistant
Bat Box Type B	215 x 215 or 215 x 290	F2 S2 – Fully Frost Resistant

Figure 6.1. Example integral bat box

Timber cladding may be used on the new garage, though this level of design has not currently been decided. If it is to be used, it is recommended that one of the horizontal boards be artificially raised by 15-25mm. This will create access into the cavity between the cladding and the wall behind. The area behind the cladding will be lined with type 1F bitumen hessian felt (BS747) to ensure bats do not come into contact with modern breathable membranes.



Figure 6.2. Artificially raised timber cladding

As brown long-eared bats are consistently roosting in the stables, a bat loft is to be installed over the lounge area 2 and part of the studio/gym, as per the plans in Figure 5.2. This will be completed prior to the end of April, before work begins to convert the stables, so that there is always a suitable roosting space for the bats on site. It will also act as a translocation point for any bats found during work. The loft will provide space for pre-emergence flights. The following specifications will be adhered to when designing the loft:

1. The plans calculate the total volume of the void to be just shy of 21m³, and will be a continuous space when the existing wall is removed between the two sections.
2. Skylights will not be placed in the roof section designated as a bat loft.
3. The loft space will have a small access hatch, so it can be checked for bat activity but not used for storage.
4. Bat access to the loft will be created through the use of access tiles as shown in Figure 6.3. One ridge access tiles, and two access tiles (one on each face of the roof) will be used. Slits will be created in the felt beneath the access tiles.
5. Type 1F bitumen hessian felt (BS747) will be used as lining beneath the slates, so bats cannot come into contact with non-bitumastic modern breathable membranes.
6. Roost opportunities will be made inside the loft by creating crevices with rough-sawn timber, these will have an entry gap of 20mm.
7. The loft space will be insulated between the floor and ceiling and not under the tiles. This is the best method to keep the area the correct temperature for bats in summer.
8. Monitoring the roost is not required as per figure 4 of the Bat Mitigation Guidelines.



Figure 6.3. Example ridge and access tiles

Lighting

Lighting needs to be designed to have minimal impact on bats and their commuting and foraging areas. This results in the recommended use of downlights and the horizontal spread of lighting to be kept to a minimum.

Where it is not possible to reduce the horizontal spread of light, a 2700°K to 3000°K LED light bulb is recommended, which will provide a warm white light. This range has the least impact on bats and invertebrates.

1. A lighting scheme will be drawn up in line with ILP and BCT Guidance Note 08/18.
2. All newly proposed external lighting will be directed away from any vegetated boundary features to retain dark corridors for commuting bats.
3. There will be no direct illumination of any enhancement features erected for bats.
4. All domestic lighting will be below 10 lux, orientated towards the ground and controlled by PIR (Passive Infra-red), set on a short timer.

6.3.3 Monitoring

Failing boxes or enhancements will be replaced at the cost of the developer if deterioration or damage is noted within five years post-development.

6.4 Other Mammals

6.4.1 Impacts

Evidence of badger activity has been found near the northwest boundary. Although no sett entrances have been found, individual badgers may be injured or killed by the proposed works.

6.4.2 Mitigation / Enhancements

An ecologist will be employed as an Ecological Clerk of Works (ECoW) to conduct a final site visit within the four weeks prior to development commencing to check the status of known badgers in the area. If badger setts are observed, then the need for a licence will be reassessed.

Prior to Construction

1. A toolbox talk about badgers and development will be provided by a suitably experienced ecologist to site personnel prior to any works taking place on site.

During Work

1. The ECoW will conduct periodic site visits to ensure there is no conflict between badgers and construction activities. Should the status of badgers alter, then advice will be supplied and an appropriate licence from Natural Resources Wales obtained if necessary.
2. No less than a 10m buffer will be cordoned off around any active sett entrances that may be discovered during site checks. This cordon will be retained throughout the development, with no machinery or significant footfall.
3. The site will be protected with a picket fence and Heras fencing, so badgers may still access the site.
4. All excavation and heaving machinery will be kept away from hedges and the site boundary.
5. All work will cease at least two hours before sunset and not start before sunrise.
6. All artificial lighting will be directed away from the boundaries of the site, and away from active setts.
7. Trenches will be covered at the end of each working day or include a means of escape for any animal falling in. Badgers will continue to use a site and known path even when construction work has commenced.
8. Any temporarily exposed open system will be capped to prevent badgers gaining access when contractors are off-site.
9. Stockpiling of soil material will be left uncompacted and not allowed to grass over, as this might encourage badgers to excavate new setts.
10. The topsoil from the site will be reused to create grassland habitat around the new buildings once completed. This will include grassland, shrub and tree planting, incorporating native species of local provenance to support foraging.

11. A 2m corridor will be left along the new hedge line once work has completed, this may incorporate gardens provided there is commuting access beneath boundary fences.

6.4.3 Monitoring

The site will be regularly checked by the ECoW for any new sett entrances.

6.5 Birds

6.5.1 Impacts

Work at this site will include the conversion of the stables and removal of ornamental planting which could affect nesting birds if conducted during the nesting season.

6.5.2 Mitigation / Enhancements

1. Any tree removal will be done outside of the bird nesting season, which is February to August inclusive. If this is not possible, a suitably experienced ecologist will conduct a check within the 24 hours prior to work commencement to ensure no nesting birds will be affected.
2. Once work has commenced on the building in line with the recommendations in 6.3.2 and it is confirmed that there are no nesting birds present, the building will be sealed to prevent birds gaining access during works and potentially causing further delay.
3. Should a nesting bird be found, a 4m buffer will be left around the nest, and no further disturbance conducted until the young have fledged.
4. It is recommended that a range of woodcrete boxes are erected around the site to provide an enhancement for passerine birds, and a selection of the following would be appropriate.



Figure 6.4. Bird boxes

6.5.3 Monitoring

Failing boxes or enhancements will be replaced at the cost of the developer if deterioration or damage is noted within five years post-development.

6.6 Amphibians

No ponds were found within 250m and the site is mostly of negligible value to newts in their terrestrial phase. No negative impact on newts is expected so no mitigation is required.

6.7 Reptiles

No evidence of reptiles was found on site so no negative impact is expected. No mitigation is required.

6.8 Invertebrates

6.8.1 Impacts

No protected or BAP invertebrates were found on site. No mitigation is required.

6.8.2 Enhancements

Bug houses will be erected in the garden to enhance the area for nesting bees.



Figure 6.5. Bug house

6.9 Invasive Species

No evidence of invasive species was found on site so no mitigation is required.

7 Concluding Remarks

The survey has focussed on the potential habitats or protected species to be damaged or destroyed as part of this development.

Bat droppings were found throughout the stables and are indicative of a brown long-eared bat roost. Further surveys identified a consistent roost of two brown long-eared bats, and transient day roosts of one common pipistrelle and one soprano pipistrelle. **Work to convert the stables must be conducted under a mitigation licence from Natural Resources Wales for work on the stables, which can be sought once planning permission has been granted. Work on the detached garage and the groundworks and lower levels of the extension can proceed as soon as planning permission has been granted, before the bat licence is in place.** The client has agreed that a bat loft can be created over the southern room of the existing building, which will become "lounge area 2" and "studio/gym". It is also recommended that the site is enhanced with integral bat boxes.

Evidence of potential badger activity was found on site. Although no sett entrances were found, there is anecdotal evidence of badgers in the area. **The development is to be done under a method statement and an ECoW is to be employed to oversee works and conduct regular site checks.**

Evidence of nesting birds has been found in the stables and potential nesting habitat was found in the trees and ornamental planting. Removal of vegetation and the sealing of the stables is to be done outside of bird nesting season which is February to August inclusive. If this is not possible an ecologist is to be employed to check the site for nesting birds within 24hrs of work commencing. It is recommended that the site is enhanced with the inclusion of bird boxes.

No ponds were found within 250m of the site and the site is mostly of negligible value to newts. No negative impact on newts is expected and no further surveys are needed.

No evidence of reptiles, BAP or protected invertebrates, or invasive species were found.

The method statements provided in sections 6.3.2, 6.4.2 and 6.5.2 of this report will be followed, and works will be done at a suitable time of year. Other than those listed above, there are no ecological constraints to the development as currently proposed.

Appendix A – Surveyor Details

Table A.1. Details of surveyors' experience and licences held

Name	Membership of associations/ experience	Licenses
Ben Jones BSc(hons) MSc	Lead Consultant Ben has a degree in Marine and Freshwater biology and a Master's degree in "Managing the Environment". He has 5 years' experience conducting environmental appraisals and phase 2 surveys for bats and newts in England and Wales.	Holder of survey licenses for bats and newts in England and Wales. <u>England:</u> Bats - 2017-29112-CLS-CLS GCN - 2016-25209-CLS-CLS <u>Wales:</u> Bats - S088669-2 GCN - S087992-1
Logan Maggs BSc(hons)	Lead Consultant Logan has a degree in Conservation and Land Management. He has 10 years' experience conducting environmental appraisals and phase 2 surveys for bats and newts in England and Wales.	Holder of survey licenses for bats and newts in England and Wales. <u>England:</u> Bats - 2016-24901-CLS-CLS GCN - 2017-29218-CLS-CLS <u>Wales:</u> Bats - S086874/1 Newts - 79665:OTH:SA:2018
Chloe Sheil MZool (Conservation)	Chloe has a master's degree in Zoology with Conservation from Bangor University. She has one years' experience assisting with surveys.	Listed as an accredited agent on Ben Jones' NRW bat licence – S088669-2

Appendix B – Methodology

Desk Study

Table B.1. Data sources

Organisation/Resource	Information Assessed
Local Records Centre - Cofnod	Protected/UK BAP Species records (2km)
MAGIC website	International statutory designations (1km) • Special Protection areas (SPA) • Special Areas of Conservation (SAC) • RAMSAR sites National statutory designations (1km) • Sites of Special Scientific Interest (SSSI) • National Nature Reserves (NNR) EPS Licenses for protected species (2km)

A data search was purchased from Cofnod on 10th December 2020.

A search on Multi Agency Geographic Information for the Countryside (Magic Maps) determined nearby designated areas. The map is presented in Section 4.1.

Field Survey

An assessment of habitats was conducted broadly following the JNCC Handbook for Phase 1 Surveys 2010. Target notes were used to identify potential for protected or notable species or habitats, and to give more detailed site descriptions.

The level of survey is aimed to identify field signs of or habitats with the potential to support protected species and therefore assist in the determination for detailed phase 2 surveys.

Determination of Ecological Value is based on the general criteria provided by IEEM (IEEM 2006).

Table B.2. Criteria of ecological values

Ecological Value	Description and Examples
High	Habitats or features that have high importance for nature conservation, such as statutory designated nature conservation sites of international or national importance or sites maintaining viable populations of species of international or national importance (e.g. Red Data Book species; European protected species).
Medium	Sites designated at a county or district level, e.g. Local Wildlife Site (LWS), ancient woodland site, ecologically 'important' hedgerows or ecological features that are notable within the context of a region, county or district (e.g. a viable area of a Priority Habitat on the county BAP or a site that supports a viable population of a county BAP species).
Low	Sites of nature conservation value within the context of a parish or neighbourhood, low-grade common habitats, such as arable fields and improved grasslands and sites supporting common, widespread species.

Hedgerows

The aim of the assessment is to ascertain whether the hedgerow could be classified as important according to the definitions listed in the Hedgerow Regulations 1997.

Species Surveys

Bats

Methodology used is in accordance with recommendations by BCT, Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition, Collins (2016).

Features on site were assessed for potential for bat roosts, foraging and commuting.

An external assessment of all structures on site was undertaken to determine potential roost features (PRF). The potential suitability of the structures assessed was assigned a rating of low to high in accordance with table 4.1 of Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition, Collins (2016).

An internal assessment of all structures was undertaken by a suitably licensed surveyor for evidence of roosting bats such as droppings, feeding remains and staining.

All trees were assessed from ground level. All trees examined were categorised on their potential roost features (PRF). These features include cracks, splits in limbs, cavities, loose bark and thick stemmed ivy. Where appropriate and accessible these features were assessed using binoculars and/or endoscopes.

Table B.3. Categorisation of trees for bats

Value for Bats	Example Features
Negligible	Young tree with no potential roost features
Low	Mature enough to have PRF, but no holes in trunk or limbs visible from ground level, very light ivy cover
Moderate	Broken limbs or hazard beams, raised bark, extensive ivy coverage
High	Extensive holes in trunk or limbs, dense ivy coverage, presence of cavities
Confirmed roost	Bat presence has been confirmed

Daytime surveys were conducted with the aid of a strong torch. Bat species may leave little evidence of their presence.

Evidence for the presence of bats includes:

- Holes, cracks and rot holes used as roosts, marked by streaks of urine and faeces.
- Smoothed, darkened edges where bats have rubbed and left natural body oils when entering and exiting a space.
- Faeces under a roof access point, a well-used feeding point or a resting spot.
- Feeding signs such as discarded insect wings under a feeding point.
- Lack of cobwebs around eaves, roof spaces, beams or ceilings where routes are kept clear by bats or presence of droppings in a cobweb.
- Presence of roosting or dead bats in or behind any object.

Phase 2 bat activity surveys were conducted to reinforce the findings using heterodyne and frequency division bat detectors (Anabat SD2, Anabat Walkabout, Wildlife Acoustics Echo Meter Touch).

Surveys were conducted when the weather conditions were suitable for bat activity, i.e. when the ambient temperature exceeded 10°C at sunset and when there was little or no rain. Dusk surveys were begun approximately 15mins prior to sunset and continued for 90-120mins following sunset depending on visibility and site conditions. Dawn surveys were begun approximately 90-120mins before sunrise, depending on the species expected, to 15 minutes after sunrise. Dawn surveys were only conducted if the temperature at the previous sunset were over 10°C.

Table B.4. Windspeed scale

Wind Force	Description	Speed mph (kph)	Specifications
0	Calm	<1 (<1.6)	Smoke rises vertically
1	Light Air	1-3 (1-5)	Direction shown by smoke drift but not by wind vanes
2	Light Breeze	4-7 (6.5-11)	Wind felt on face; leaves rustle; wind vane moved by wind

Activity surveys are conducted to establish the presence of bats within a structure, what species they are, approximately how many are present, and if possible, where they are exiting a roost.

Bats were identified from the characteristic echolocation calls using appropriate computer sonogram analysis software.

Badgers

Surveys were conducted using guidance from Scottish Natural Heritage commissioned Report No 096 (2003).

Daytime surveys for badgers involved looking for:

- Scrapings where badgers have dug for food or used as latrines.
- Signs of a sett, including signs of use such as presence of badger hair
- Tracks and prints.

Birds

Searching for evidence of nesting birds, including barn owls, involved looking for:

- Presence of nests
- Collections of droppings and/or feathers
- Highly distinctive droppings or splats under roosting points.
- Presence of owl pellets/feathers
- Listening for bird song
- Recording bird activity

Amphibians and Reptiles

The terrestrial habitats at the application site were surveyed and assessed for their suitability and potential value for the support of GCN. The general topography, ground conditions and presence or absence of vegetation were recorded. A refugia search was conducted for amphibians and reptiles by looking under any logs, large stones and other debris.

Appendix C – Policy

The following areas of policy and legislation are of relevance to ecology and provide context to the surveys conducted. Findings presented in this report are in line with the following:

The Conservation of Habitats and Species Regulations (2017) – as listed in:

- Schedule 2. European protected species of animals
- Schedule 5. European protected species of plants

The Wildlife and Countryside Act (1981) – as listed in:

- Schedule 1. Birds protected by special penalties at all times
- Schedule 5. Protected animals
- Schedule 8. Protected plants

Countryside and Rights of Way Act (2000)

Hedgerow Regulations (1997)

The Protection of Badgers Act (1992)

Natural Environment and Rural Communities (NERC) Act (2006)

Planning Policy Wales 2002, updated Dec 2018

Section 6.4 – Biodiversity and Ecological Networks

The Nature Recovery Plan for Wales – Setting the course for 2020 and beyond (2015)

Environment Act (Wales) (2016)
Section 7

Wrexham Unitary Development Plan – EC6 Biodiversity Conservation

Hedgerows

All hedgerows are potentially protected by the Hedgerow Regulations 1997. Under these regulations it is against the law to remove or destroy certain hedgerows without permission from the LPA. These Regulations do not apply to any hedgerow within the curtilage of or marking the boundary of a dwelling house.

Permission is required before removing hedges that are least 20m in length and over 30 years old. Permission is gained by submitting a Hedgerow Removal Notice to the LPA as set out in Schedule 4 of the Regulations.

Permission is not required in the following instances:

- To make a new opening in substitute for an existing one which gives access to land.
- To obtain temporary access to any land in order to give assistance in an emergency.
- To gain access to land where another means of access is not available or is available at a disproportionate cost.
- For National Defence purposes.
- Where planning permission has been authorised except where permission has been granted by the Town and Country Planning General Permitted Development Order 1995.
- To carry out work for the purposes of flood defence or land drainage.
- To prevent spread of or ensure eradication of a plant or tree pest.
- For work undertaken by the Secretary of State in respect of any highway for which he is the highway authority or in relation to which he has the same powers as the Local Highway Authority.
- To prevent obstruction of or interference with electric lines and plant or prevent danger under the Electricity Act 1989.
- For the proper management of the hedgerow.

Hedgerows in areas covered by Historic Landscape Characterisation are often protected on the basis of historical importance and their wildlife value.

Hedgerows are listed as a habitat of principal importance under section 41 of the NERC Act (2004). This draws on the UK Biodiversity Action Plan (BAP) definition of priority habitats. Under the 2007 UK BAP, hedgerow priority habitat includes all hedgerows with at least 80% cover of at least one woody UK Native species (BRIG 2011).

Bats

All bat species are protected under the Conservation of Habitats and Species Regulations 2017 which implements the EC Directive 92/43/EEC in the United Kingdom. It is an offence, with certain exceptions, to:

- Deliberately capture or kill any wild animal of a European Protected Species.
- Deliberately disturb any such animal.
- Damage or destroy a breeding site or resting place of such a wild animal.
- Keep (possess), transport, sell or exchange, or offer for sale or exchange, any live or dead wild animal or plant of a European Protected Species, or any part of, or anything derived from such a wild animal or plant.

A person found guilty of an offence is liable on summary conviction to imprisonment for a term not exceeding six months or to an unlimited fine or to both.

Seven bat species are on the UK Biodiversity Action Plan and are listed as Species of Principal Importance under the provisions of the Natural Environment and Rural

Communities (NERC) Act 2006. The National Planning Policy Framework (NPPF) states that to minimise impacts on biodiversity and geodiversity, *"planning policies should... promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations"*.

To allow a development that might result in an offence, a derogation licence can be sought via the implementation of a European Protected Species Licence. This is provided by Natural Resources Wales.

Work can be conducted under a derogation licence from Natural Resources Wales providing suitable compensation and mitigation is provided and the "three tests" can be met. These are:

Regulation 55(2)(e) states: a licence can be granted for the purposes of "preserving public health or public safety" or other imperative reason of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.

Regulation 55(9)(a) States: the appropriate authority (Natural Resources Wales) shall not grant a licence unless they are satisfied "that there is no satisfactory alternative".

Regulation 55(9)(b) states that the appropriate authority shall not grant a licence unless they are satisfied "that the action licensed will not be detrimental to the maintenance of the population of the species concerned at favourable conservation status in its natural range."

The method statement in the EPS licence is a legally binding document which outlines the species, context of the colony, method of mitigating and compensating and ongoing habitat management for ensuring favourable conservation status.

Badgers

Badgers and their setts are specifically protected under the Protection of Badgers Act 1992. The act was primarily brought into force to prevent the deliberate injury to or death of badgers. Some aspects of the act affect developers. It is important that developers are aware of any badger setts located on the land they intend to develop.

All personnel working on sites where there are badgers should be aware of the Protection of Badgers Act 1992. Under this legislation it is an offence to:

- Damage a badger sett or any part of it.
- Destroy a badger sett.
- Obstruct access to, or any entrance of a badger sett.
- Causing a dog to enter a badger sett.
- Disturbing a badger when it is occupying a badger sett.

Birds

Under Section 1 of the Wildlife and Countryside Act 1981 (as amended), birds, their nests and young are all protected from damage, particularly during the breeding season. The Act allows for fines or prison sentences for every bird, egg or nest destroyed. It makes it an offence to:

- Intentionally kill, injure or take any wild bird.
- Take, damage or destroy the nest of any wild bird whilst it is in use or being built.
- Take damage or destroy the egg of any wild bird.
- To have in one's possession or control any wild bird, dead or alive or egg or any part of a wild bird or egg.

Some bird species are included in the UK and local BAPS and are recognised as species of principal importance for nature conservation in accordance with section 41 of the NERC Act 2006. Such species and their habitats receive protection through the provisions of the NPPF.

Barn Owls

Barn owls are listed on Schedule 1 which gives them special protection.

It is an offence to:

- Intentionally kill, injure or handle any wild barn owl.
- Intentionally take, damage or destroy any wild barn owl nest whilst in use or being 'built'.
- 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 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 young.
- Intentionally or recklessly disturb any dependent young of wild barn owls.

It is not an offence to:

- Take a disabled wild barn owl solely for the purpose of tending it until fully recovered and then returning it to the wild.
- Kill, injure, take or disturb barn owls if these were incidental results of a lawful operation and could not reasonably have been avoided.

Amphibians and Reptiles

All species of amphibians receive a measure of protection under legislation.

The Wildlife and Countryside Act 1981 has been amended by the Countryside and Rights of Way Act (CROW) 2000. This applies to England and Wales only. The key relevant fact is:

- Section 9(4) is amended to create an additional offence of reckless damage to, destruction of, or obstruction of access to, any structure or place used for shelter or protection; and reckless disturbance while occupying such a structure or place.

Great Crested Newts

Great crested newts are protected under the Conservation of Habitats and Species Regulations 2017 which implements the EC Directive 92/43/EEC in the United Kingdom. It is an offence, with certain exceptions, to:

- Deliberately capture or kill any wild animal of a European Protected Species.
- Deliberately disturb any such animal.
- Deliberately take or destroy eggs of any such wild animal.
- Damage or destroy a breeding site or resting place of such a wild animal.
- Keep (possess), transport, sell or exchange, or offer for sale or exchange, any live or dead wild animal or plant of a European Protected Species, or any part of, or anything derived from such a wild animal or plant.

Great crested newts are listed as a priority species on the UK BAP and Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. The National Planning Policy Framework (NPPF) states that to minimise impacts on biodiversity and geodiversity, *"planning policies should... promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations"*.

A person found guilty of an offence is liable on summary conviction to imprisonment for a term not exceeding six months or to an unlimited fine, or to both.

Invertebrates

There are three invertebrate species that are European protected species (EPS) in the UK. They are:

- Large blue butterflies (eggs, caterpillars, chrysalises and adults)
- Fisher's estuarine moths (eggs, caterpillars, chrysalises and adults)
- Little ramshorn whirlpool snails

It is an offence to:

- capture, kill, disturb or injure, on purpose or by not taking enough care, an EPS species
- damage or destroy a breeding or resting place (even accidentally)
- obstruct access to their resting or sheltering places (on purpose or by not taking enough care)
- possess, sell, control or transport live or dead EPS invertebrates, or parts of them

A person found guilty of an offence is liable on summary conviction to imprisonment for a term not exceeding six months or to an unlimited fine or to both.

400 other species form the invertebrate species of Principal Importance in England and are included within Schedule 5 of the Wildlife and Countryside Act 1981, and Section 42 of the Natural Environment and Rural Communities (NERC) Act 2006.

Some species are listed under the Conservation of Habitats and Species Regulations 2017 and The Conservation Regulations 1994 which implement the EC Directive 92/43/EEC in the United Kingdom.

It is illegal to:

- Intentionally kill, injure or take a protected invertebrate.
- Possess or control any live or dead specimen of anything derived from a protected invertebrate.
- Cause intentional damage to or destruction of any structure or place used by a protected invertebrate for shelter or protection
- Cause intentional disturbance of a protected invertebrate occupying such a structure or place
- Cause obstruction of access to any structure or place used for shelter or protection
- Selling, offer for sale, possess or transport a protected invertebrate for the purpose of sale (live or dead animal, part or derivative)
- Advertise for buying or selling a live or dead protected invertebrate, part or derivative

Such species and their habitats listed under the NERC Act 2006 receive protection through the provisions of the NPPF. The National Planning Policy Framework (NPPF) states that to minimise impacts on biodiversity and geodiversity, *"planning policies should... promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations"*.

Appendix D - Bat Activity Surveys

Table D.1. Survey results table

Date	Time Start-End	Species and Numbers	Roost Type	Structure	Roost Location	Access Points
18/05/2021	20:50-22:45	BLE x2	Day	Stables	Upper floor	Gap alongside supporting timber over cart gate
Notes:	A peak count of two Brown long-eared bats were seen at any one time. One emerged and then re-entered into the roost space in the upper floors via a gap adjacent to structural timber joists at 21:40. An internal check revealed two brown long-eared bats inside the building over existing piles of droppings, suggesting a frequent roost location. No other emergencies were recorded, all other activity was from foraging bats, including common pipistrelles and noctule.					
09/06/2021	02:50-04:55	BLE x2 Soprano pip x1	Day	Stables	Upper floor	Separate gaps alongside supporting timbers, BLE on west side, soprano on east side
Notes:	Two brown long-eared bats were seen to re-enter the upper-floor roost space via the gap alongside the joists over the western side of the cart gate, the first at 03:56 and the second at 04:05. At 04:37 a soprano pipistrelle re-entered a similar but smaller gap on the eastern side of the cart gate. No other re-entries were recorded, a Natterer's bat was seen foraging over the courtyard south of the stables, before leaving site to the south.					
30/06/2021	21:30-23:00	BLE x2 Common pip x1	Day	Stables	Upper floor	Separate gaps alongside supporting timbers, BLE on west side, common on east side
Notes:	Two brown long-eared bats were again recorded emerging from the gap alongside the joist over the cart gate, first at 22:09 and again at 22:58. Once emerged, the brown long-eared bats foraged around the building, flying through the gap above the cart gate to the garden to the north. A common pipistrelle also emerged at 22:02, using the same gap as the soprano pipistrelle used on the previous survey. No soprano pipistrelles were recorded on this survey. All other activity was of foraging bats, including a myotis bat foraging the courtyard to the south of the stables after entering site from the south from a roost elsewhere.					

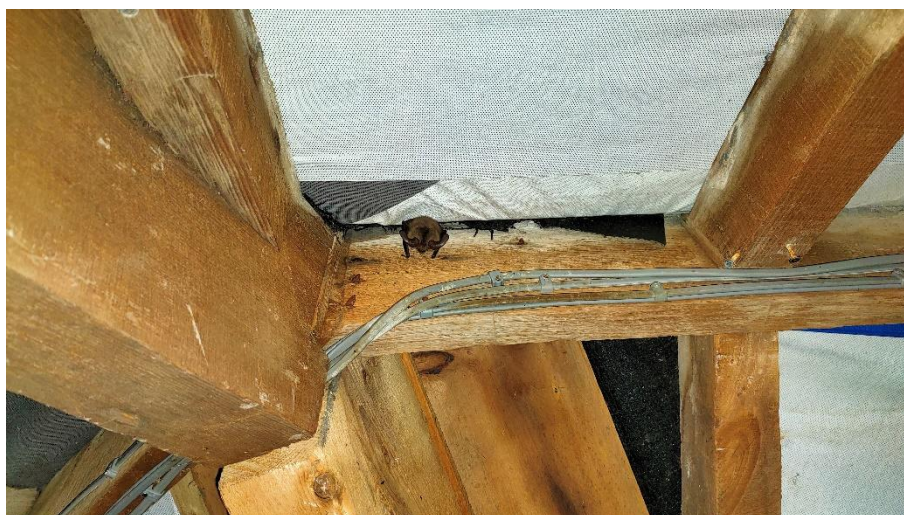


Figure D.1. BLE seen on timbers inside.

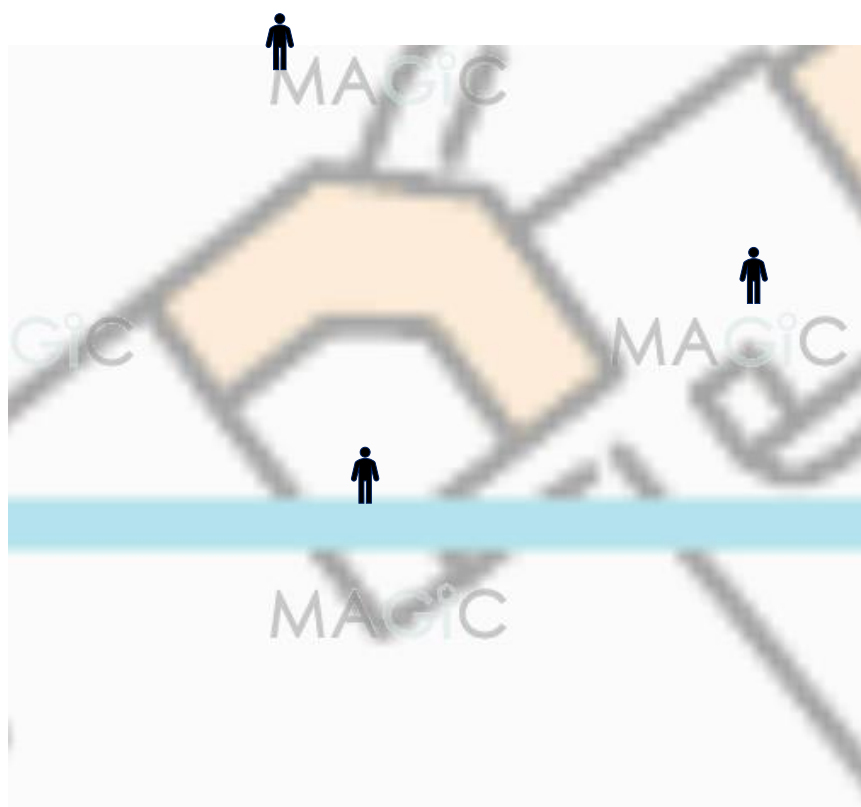


Figure D.2. Survey area

Icon	Description
	Stationary Surveyor

Note that a surveyor was not needed to cover the end gables of the building, as these are parapet gables with negligible roost value, no cracks were present in the brickwork and no potential roost access points were present. The spread of surveyors allowed visibility of all potential access points.

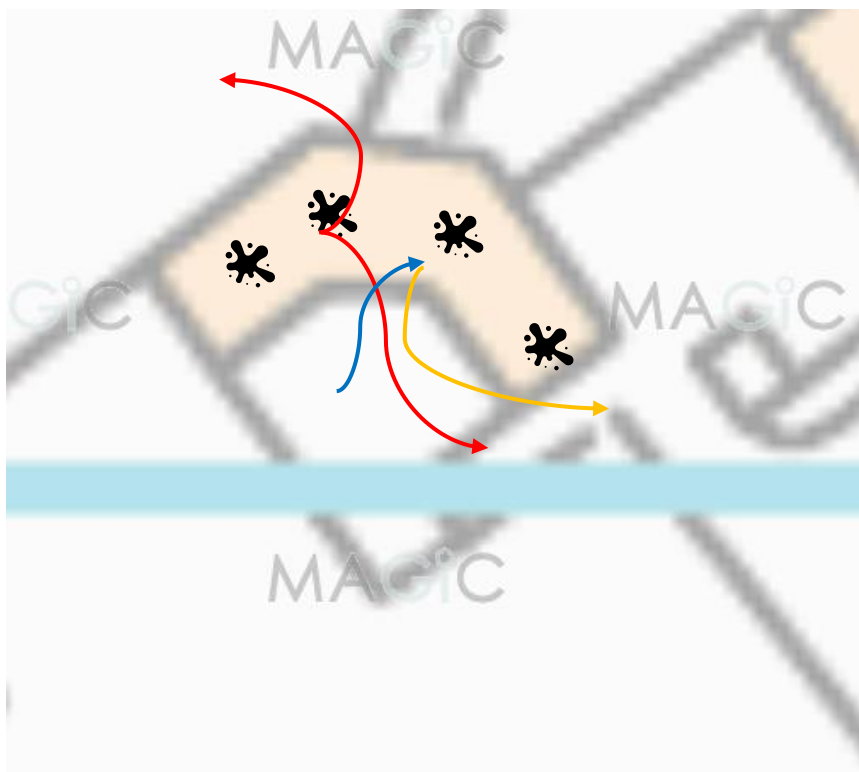
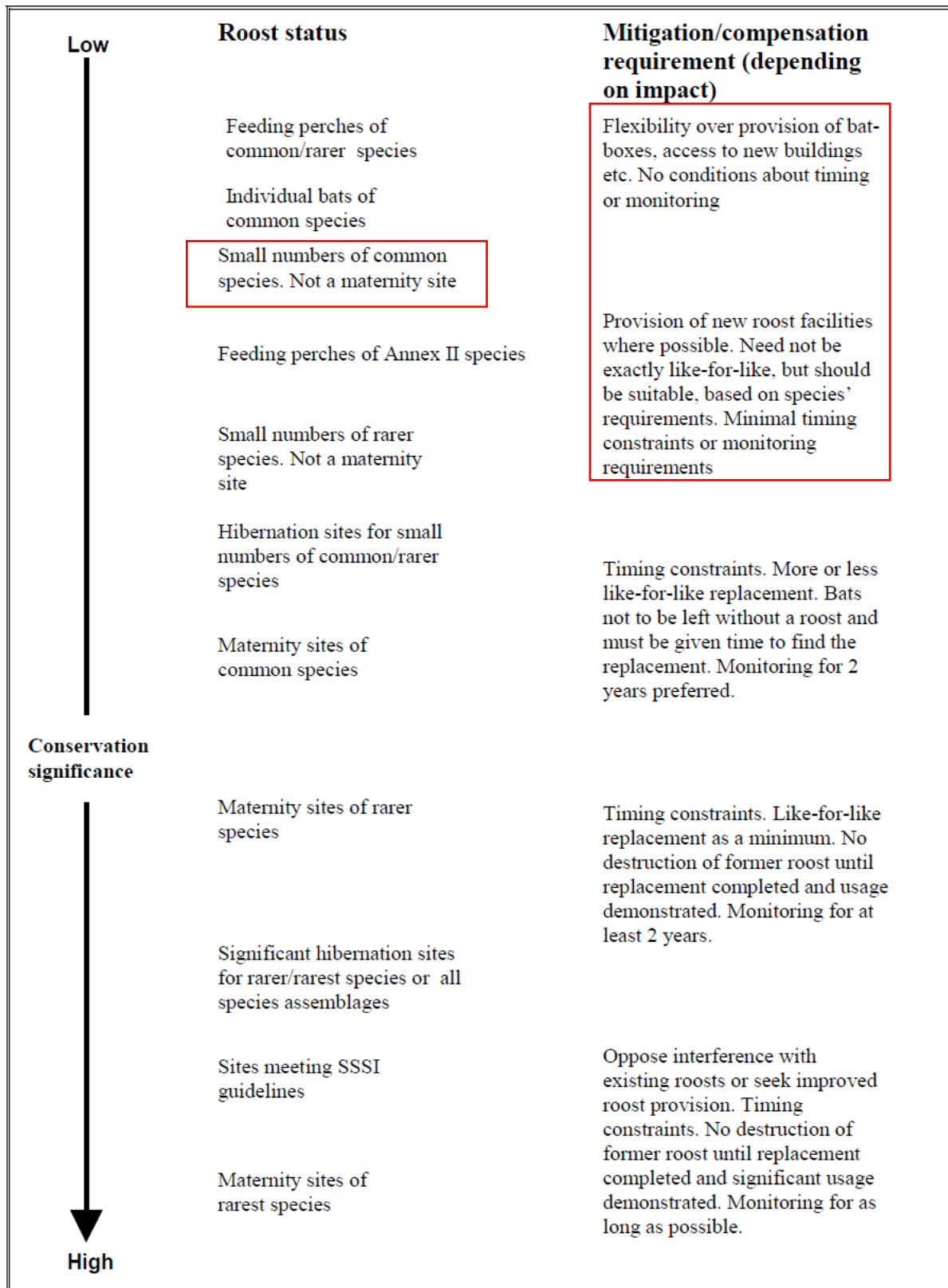


Figure D.3. Survey results

Icon	Description
	Roost Locations
	Droppings Location
	BLE flight paths
	Soprano pip flight path
	Common pip flight path



Appendix E – Bibliography

Barn Owl Trust (2012) *Barn Owl Conservation Handbook*, Pelagic Publishing, Exeter

Chartered Institute of Ecology and Environmental Management (CIEEM), (2006). *EcIA Guidance (Terrestrial, Freshwater and Coastal 2006)*.

Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). Bat Conservation Trust

Conservation of Habitats and Species Regulations 2017:

http://www.opsi.gov.uk/si/si2010/uksi_20100490_en_1

English Nature (2001) *Great crested newt mitigation guidelines* - English Nature

HMSO (2000) *Countryside and Rights of Way Act 2000* - HMSO, London

<http://www.legislation.gov.uk/ukpga/2000/37/contents>

HMSO (1981) *Wildlife and Countryside Act 1981* - HMSO, London

<http://www.legislation.gov.uk/ukpga/1981/69>

HMSO (1992) *The Protection of Badgers Act* - HMSO, London

<http://www.legislation.gov.uk/ukpga/1992/51/contents>

ILP (2018) *Guidance Note 08/18 Bats and artificial lighting in the UK*, The Institute of Lighting Professionals

Mitchell-Jones A.J. (2004) *Bat Mitigation guidelines*, English Nature

National Planning Policy Framework 2018:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/728643/Revised_NPPF_2018.pdf

Natural England – *Nature on the Map, Magic Maps*. Copyright Natural England, containing Ordnance Survey data, crown copyright and database right 2018:

<http://magic.defra.gov.uk/magicmap.aspx>

Natural Environment and Rural Communities Act 2006:

<http://www.legislation.gov.uk/ukpga/2006/16/contents>