

Whins Lodge, Whalley Old Road, Old Langho BB6 8DU

ECOLOGICAL SURVEY AND ASSESSMENT
(including a Daylight Licensed Bat and Barn Owl Survey and Bat Activity Surveys)

February 2021

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ERAP (Consultant Ecologists) Ltd
Building N2
Chorley Business and Technology Centre
East Terrace
Euxton Lane
Euxton
Chorley
PR7 6TE

Tel: 01772 750502

mail@erap.co.uk
www.erap.co.uk



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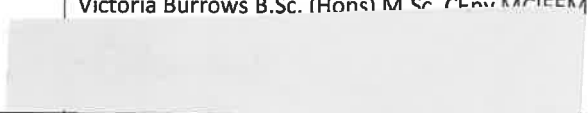
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Document Control

Survey Type:	Surveyors ¹	Survey Date(s)
Extended Phase 1 Habitat survey and daylight licensed bat and barn owl survey	Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM Principal Ecologist	13 th July 2020
Dusk emergence survey	Victoria Burrows and three assistants	11 th August 2020
Dawn re-entry survey	Victoria Burrows and three assistants	30 th August 2020
Reporting	Personnel	Date
Author	Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM	14 th February 2020
Signature(s)		
Checked	Luke Atherton B.Sc. (Hons) M.Sc. Graduate Ecologist	15 th February 2020
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Version Number	1	
Report issued to	Mr. A Myers / Zara Moon Architects	
¹ Licence reference numbers		
Bats		
Victoria Burrows Natural England Class Survey Licence (bats, Level 2) Registration Number 2015-10390-CLS-CLS		
Barn owl		
Victoria Burrows Natural England Class Survey Licence Registration Number CL29/00061		

SUMMARY

Introduction and Scope

- i. This ecological survey and assessment presents the ecological, biodiversity and nature conservation status of Whins Lodge, Whalley Old Road, Old Langho. The assessment was requested to inform a planning application to extend the existing residential dwelling involving the demolition of an outbuilding, garage, former kennels and a single storey annex at the house.
- ii. This report presents the results of a desktop study and data search, an extended Phase 1 Habitat Survey and a licensed bat and barn owl survey and assessment carried out in July and August 2020. The surveys were carried out by an appropriately experienced, qualified and licensed ecologist with assistants. Surveys were carried out in accordance with recognised, standard survey guidelines. No significant survey limitations were experienced.
- iii. The approximately 0.4 hectare site is located within rural surroundings to the south-east of Whalley Old Road and to the east of the village of Old Langho. The site comprises a large, detached house with outbuilding, summerhouse, garage and a dilapidated former kennel building bordered by mature lawns and herbaceous borders with mature and semi-mature trees. Mature woodlands are present to the south-west and north-east and the land immediately north-east of the site boundary is designated as Cronshaw Chair Biological Heritage Site with invertebrate interest.

Results of Survey and Assessment

- iv. Adverse direct and indirect impacts on statutory designated sites for nature conservation will be avoided by the proposals. The proximity of the site to Cronshaw Chair Biological Heritage Site is recognised and protective measures to ensure direct and indirect effects on the designated site and its features of special interest will be achieved, refer to **Section 5.2**.
- v. The site contains only common and widespread plant species. None of the habitats within the site are representative of semi-natural habitat or are Priority Habitat. The value of the mature woodland and the Priority Habitat status of the woodland bordering the site for the attraction of wildlife is recognised. Retention, and protection during construction, of the trees will be achieved by the proposals.
- vi. Four invasive plant species listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), are present within the site and stands of Japanese Knotweed lie outside the site. The proposals provide an opportunity to achieve the control and management of these species, on land within the control of the applicant, to minimise the risk of further spread into the wild, refer to **Section 5.3**.
- vii. The daylight licensed bat survey and the dusk emergence and dawn re-entry surveys detected the following roosts at the house and outbuilding:
 - Roost 1:** Brown long-eared bat day roost (maximum 1 bat although likely to be used by a higher number of bats at other times in the activity season) in the roof void at the house;
 - Roost 2:** Soprano pipistrelle day roost (maximum 1 bat) beneath the ridge coping on the single storey annex at the eastern corner of the house;
 - Roost 3:** Common pipistrelle roost (maximum 3 bats) (possible dispersed maternity roost / satellite roost) beneath a ridge at the single storey annex at the eastern corner of the house; and
 - Roost 4:** Common pipistrelle roost (maximum 1 bat) beneath the ridge coping on the outbuilding.
- viii. In the absence of mitigation, the demolition and extension proposals will result in the disturbance and loss of Roosts 2 to 4 and the disturbance and modification of Roost 1. In accordance with Natural England's standing advice this would represent a low to moderate scale of impact.

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- ix. A bat mitigation strategy describing how the proposals can be achieved whilst protecting roosting bats, ensuring there is no net loss of roosting opportunity at the site in the long-term and describing how any post-development interference impacts will be avoided is provided at **Section 5.4**. The demolition and extension works that will affect the known roosts may only be carried out under a Natural England European Protected Species Mitigation (EPSM) licence issued under Regulation 55 of *The Conservation of Habitats and Species Regulations 2017*.
 - x. The trees and shrubs within the site and on the site boundaries provide suitable habitat for nesting and foraging passerine (perching) bird species, including Priority Species. Mandatory actions to protect nesting birds during site clearance and measures to provide compensatory opportunities for nesting birds are recommended at **Sections 5.5 to 5.6** and can be achieved by the proposals.
 - xi. Appropriate survey effort and assessment has been carried out to discount the presence of / adverse impacts on other relevant protected species (including badger, barn owl, great crested newt and reptiles).

Recommendations and Conclusion

- xii. The recommendations in **Section 5.0** identify all the mandatory measures and ecological recommendations to be applied to ensure compliance with relevant wildlife legislation, the National Planning Policy Framework (NPPF) and best practice.
- xiii. This ecological survey and assessment has demonstrated that the proposals at Whins Lodge can be achieved with no adverse effect on designated sites for nature conservation and ecologically valuable habitats.
- xiv. The comprehensive mitigation strategy outlined in **Section 5.4** demonstrates that mitigation for roosting bats and conservation of habitats for bat species and other wildlife at the site in the long-term is entirely feasible. The 'three tests' of *The Conservation of Habitats and Species Regulations 2017* will be met and the appropriate Natural England licence will be obtained to facilitate the works.
- xv. Measures to protect other features at the site namely the Biological Heritage Site and trees and actions to be implemented to achieve a net gain for biodiversity to achieve compliance with the NPPF are feasible and outlined in **Section 5.0**.

1.0 INTRODUCTION

1.1 Background and Rationale

1.1.1 ERAP (Consultant Ecologists) Ltd was commissioned to carry out an ecological survey and assessment of the house and associated buildings and garden curtilage at Whins Lodge, Whalley Old Road, Old Langho BB6 8DU (hereafter referred to as the 'site'). The Ordnance Survey (OS) grid reference at the centre of the site is SD 71253 33873.

1.1.2 The survey and assessment were requested in connection with a planning application to extend the house involving the demolition of the outbuilding, garage, former kennels and a single storey annex on the house.

1.2 Scope of Works

1.2.1 The scope of ecological works undertaken comprised:

- a. A desktop study and data search for known ecological information at the site and the local area;
- b. An Extended Phase 1 Habitat Survey and assessment;
- c. Assessment of the ecological value of the habitats within the site with the use of the National Vegetation Classification (NVC) and the Ratcliffe criteria, as presented in *A Nature Conservation Review* (Ratcliffe, 1977);
- d. Survey and assessment of all habitats for relevant statutory protected species¹ and other wildlife including badger (*Meles meles*), great crested newt (*Triturus cristatus*), bird species and reptiles;
- e. A licensed daylight bat and barn owl (*Tyto alba*) survey and assessment of the house, outbuilding, garage, summerhouse, former kennels and trees and the relevant scope of bat activity surveys;
- f. The identification of any potential ecological constraints on the proposals and the specification of the scope of mitigation and ecological enhancement required in accordance with wildlife legislation, planning policy guidance and other relevant guidance; and
- g. The identification of any further surveys or precautionary actions that may be required to inform a planning application and prior to the commencement of any development activities.

2.0 METHOD OF SURVEY

2.1 Desktop Study and Data Search

2.1.1 The following sources of information and ecological records were consulted:

- a. MAGIC: A web-based interactive map which brings together geographic information on key environmental schemes and designations, including details of statutory nature conservation sites;

¹ In accordance with *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and Their Impact on the Planning System* (Ministry of Housing, Communities & Local Government, 2005) developers should not be required to undertake surveys for protected species unless there is reasonable likelihood of the species being present and affected by the development. There are no watercourses or ditches within or adjacent to the site. Based on this and in consideration of the size of the site and the extent of the proposals, the need to carry out surveys for riparian fauna including protected species such as water vole and otter is reasonably discounted and scoped out at this stage.

- b. Lancashire Environmental Record Network (LERN); and
- c. Lancashire Biodiversity Action Plan (BAP).

2.1.2 The *Tree Survey* (Lakeland Tree Consultancy, August 2020) prepared for the site was also consulted for background information.

2.2 Extended Phase 1 Habitat Survey

Survey Date and Conditions

2.2.1 An extended Phase 1 Habitat Survey and licensed daylight bat survey was carried out by Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM on 13th July 2020. The weather conditions were overcast with a light drizzle, a light air (Beaufort scale 1) and a temperature of 16°C.

Survey Method

2.2.2 A Phase 1 Habitat Survey map was prepared for the site and the immediate surrounding area, refer to **Figure 2**. The mapping is based on the Joint Nature Conservation Committee Phase 1 Habitat Survey methodology (JNCC, 2010) with minor adjustments to illustrate and examine the habitats with greater precision.

2.2.3 The plant species within the site boundary were determined with estimates of the distribution, ground cover, abundance and constancy of individual species. The estimation of abundance was based on the DAFOR system, where D = Dominant, A = Abundant, F = Frequent, O = Occasional and R = Rare, this being a widely used and accepted system employed by ecological surveyors. The terms L = Locally and V = Very were additionally used to describe the plant species distributions with greater precision.

2.2.4 Stands of vegetation and habitats were described and evaluated using the National Vegetation Classification (NVC). The NVC provides a systematic and comprehensive analysis of British vegetation and is a reliable framework for nature conservation and land-use planning.

2.2.5 Searches were made for uncommon, rare and statutorily protected plant species, those species listed as protected in the *Wildlife and Countryside Act 1981* (as amended) and species which are indicators of important and uncommon plant communities. Plant nomenclature follows *New Flora of the British Isles 3rd Edition* (Stace, 2010).

2.2.6 Searches were carried out for the presence of invasive species, including those listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), including Japanese Knotweed (*Fallopia japonica*), Indian Balsam (*Impatiens glandulifera*) and Giant Hogweed (*Heracleum mantegazzianum*).

2.3 Bat Species

Habitat Assessment for Commuting / Foraging Bats

2.3.1 Habitats within and adjacent to the site were assessed for their value and suitability for commuting and foraging bats in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*, (Collins, J. (ed), 2016). Reference has been made to the categories and descriptions / examples, presented below.

Table 2.1: Consideration of Suitability of Foraging and Commuting Habitat for Bats

Suitability	Commuting Habitat	Foraging Habitat
Negligible	Negligible habitat features on site likely to be used by commuting bats.	Negligible habitat features on site likely to be used by foraging bats.
Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitat.	Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree or patch of scrub.
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens.	Habitat that is linked to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	Continuous, high-quality habitat that is well connected to the wider landscape and is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. Habitats close to and connected to known roosts.	High-quality habitat that is well-connected to the wider landscape and is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Habitats close to and connected to known roosts.

Daylight Survey

Survey Personnel, Date and Relevant Guidelines

- 2.3.2 A daylight licensed bat survey and assessment of the house, outbuilding, garage, summerhouse, former kennels and trees was carried out by Victoria Burrows (Natural England Level 2 licence number is 2015-10390-CLS-CLS) on 13th July 2020. The surveyor’s qualifications and experience meet the criteria as defined in the *Technical Guidance Series Competencies for Species Survey: Bats* (CIEEM, 2013).
- 2.3.3 The external inspections of the buildings were updated prior to the dusk emergence survey / after the dawn re-entry surveys carried out in August, as outlined below.
- 2.3.4 The survey and assessment were carried out in accordance with standard methodology including the *Bat Mitigation Guidelines* (Mitchell-Jones, 2004), the *Bat Workers’ Manual 3rd Edition* (Mitchell-Jones & Mcleish, 2004) and *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)* (Collins, J. (ed), 2016).

Buildings

- 2.3.5 An inspection of the external surfaces, walls and roofs of the buildings was carried out to find potential bat roosting habitat or accesses into internal areas where roosts may be present. Searches for evidence of bat presence in the form of droppings, urine stains, feeding signs, grease marks and other evidence were carried out.
- 2.3.6 The internal survey involved an examination of the accessible internal areas to find roosting bats or evidence of previous use of the buildings by bats such as droppings and prey remains. This included the search of the roof void and the cellar at the house.
- 2.3.7 The suitability of the buildings for used by roosting bats has been assessed in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*, (Collins, J. (ed), 2016), taking into account any presence of gaps suitable for access by bats, features suitable for use by roosting bats

within the buildings (including crevice dwelling species and species which can roost in the open in roof voids), and the suitability of the surrounding habitats for use by foraging and commuting bats.

Trees

- 2.3.8 Trees were assessed from the ground using binoculars and a high-powered torch. Each tree was searched for the presence of the following features:

Woodpecker holes, rot holes, hazard beams, other vertical or horizontal cracks or splits in stems and branches, partially decayed platey bark, knot holes, man-made holes, tear-outs, cankers in which cavities have developed, other hollows or cavities, including butt-rots, double-leaders forming compression forks with included bark, gaps between overlapping stems or branches, partially detached Ivy (*Hedera helix*) with stem diameters in excess of 50mm and bat, bird or dormouse (*Muscardinus avellanarius*) boxes.

- 2.3.9 Terms used to describe any features present follow (where possible) those outlined and described in *Bat Tree Habitat Key, 2nd Edition* (Andrews, H (ed), 2013) and *Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-care and Ecology Professionals* (BTHK, 2018).

- 2.3.10 The requirement for further presence / absence surveys at each tree was then considered.

Equipment

- 2.3.11 A list of equipment used is detailed below:

Table 2.2: Survey Equipment Used / Available for Use During Daylight Bat Survey

Ladders
LED Lenser P14 torch
Canon Ixus digital camera
8x20 binoculars
Ridgid Micro Inspection Camera Endoscope CA-300

Presence / Absence Surveys: Bat Activity Surveys

- 2.3.12 Two bat activity surveys were carried out at the house and outbuilding in August 2020.
- 2.3.13 Four surveyors, experienced in conducting bat surveys, were positioned at suitable locations to maximise the coverage of the house and outbuilding (including all potential roost features identified during the daylight survey) to determine any entry into or exit from the buildings by roosting bats. Heterodyne detectors were used to determine any bat detected to species or group (*Myotis* species often cannot be reliably separated to species via their echolocation calls, for example). Recording bat detector units² were used to record and analyse echolocation calls after the survey using AnalookW and Anabat Insight call analysis software.
- 2.3.14 The dusk emergence survey commenced at least 15 minutes before sunset and continued until at least 1.5 hours after sunset. The dawn re-entry survey commenced approximately 1.5 hours before sunrise and ended 15 minutes after sunrise, provided all bat activity had ceased by this point.
- 2.3.15 Surveyor positions are annotated on **Figure 3**. Any bat emergence or re-entry activity was recorded. All surveys were conducted under suitable conditions. The dates of the surveys, surveyors and equipment used and weather conditions present are presented in the table below.

² i.e. Anabat SD2, Anabat Scout and Anabat Express

Table 2.3: Dusk Emergence and Dawn Re-entry Survey Dates, Weather Conditions and Surveyors

Date	11 th August 2020	30 th August 2020
Survey Type	Dusk emergence	Dawn re-entry
Sunset / rise	20:46	06:14
Start time	20:20	04:30
End time	22:30	06:29
Wind	Beaufort scale 0 (calm)	Beaufort scale 0 (calm)
Precipitation	Dry	Dry
Air temperatures	25°C at start falling to 19°C at end	9°C throughout
Surveyor Position	Surveyor and Detector	Surveyor and Detector
1	Victoria Burrows Batbox Duet and Anabat SD2	Victoria Burrows Batbox Duet and Anabat SD2
2	Sue Lonsdale Batbox Duet and Anabat Express	Sue Lonsdale Batbox Duet and Anabat Express
3	Luke Atherton Anabat Scout	Luke Atherton Anabat Scout
4	Catie Haworth Anabat Scout	Danielle Rowlands Anabat Duet and Anabat SD2

2.4 Other Animal Life

Badger

- 2.4.1 The survey area for badger covered the site and extended to accessible land within a radius of 50 metres from the site boundary.
- 2.4.2 The survey was conducted in accordance with guidance presented within *Badgers and Development* (Natural England, 2007) and *Badgers: surveys and mitigation for development projects* (Natural England, 2015).
- 2.4.3 The following signs of badger activity were searched for:
- Sett entrances, e.g. entrances that are normally 25 to 35cm in diameter and shaped like a 'D' on its side;
 - Large spoil heaps outside sett entrances;
 - Bedding outside sett entrances;
 - Badger footprints;
 - Badger paths;
 - Latrines;
 - Badger hairs on fences or bushes;
 - Scratching posts; and
 - Signs of digging for food.
- 2.4.4 Habitats within and surrounding the site were assessed in terms of their suitability for use by foraging and sheltering badger in accordance with their known habitat preferences as detailed in current guidance and *Badger* (Roper, 2010).

Bird Species

- 2.4.5 All visible and audible birds were recorded during the site visits. The recording followed the standard recording methodology and codes of the *British Trust for Ornithology (BTO) Common Birds Census* (Marchant, 1983).
- 2.4.6 Habitats throughout the site and in the immediate surrounding area were assessed for their value to roosting, feeding and nesting birds, as indicated by the amount of shelter, feeding value, woody vegetation structure and species diversity of tree and shrub species in the site.

Barn Owl

- 2.4.7 The buildings were searched for barn owl, pellets, faecal splashes and feathers which may indicate use by roosting or nesting barn owl in accordance with *The Barn Owl Conservation Handbook* (Barn Owl Trust, 2012) and *Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment. Developing Best Practice in Survey and Reporting* (Shawyer, 2011).

Great Crested Newt

Desktop Search for Ponds

- 2.4.8 In accordance with current Natural England guidance (Natural England, 2015) all ponds within an unobstructed 500 metres of a site should be considered for their suitability to support breeding great crested newts.
- 2.4.9 There is one garden pond (Pond 1) within the site. Examination of OS and MAGIC maps confirms that there are three possible ponds within a 500 metre radius of the site, as presented at **Table 2.4** below.

Table 2.4: Ponds within a Radius of 500 metres from the Site Boundary

Pond Number	OS Grid Reference	Distance and Direction from Site Boundary, refer to Figure 1	Notes
1	SD 71262 33842	Within site	On-line garden pond
2	SD 71218 33844	30 metres to the west	Possible pond / pool within woodland to the west of the site
3	SD 71541 33825	233 metres to the east	Located on the opposite side of Old Nab Road
4	SD 71593 33805	285 metres to the east	Located on the opposite side of Old Nab Road

Consideration of Requirement for Further Survey

- 2.4.10 The requirement for further survey at each pond was then assessed using the following criteria:
- Presence of dispersal barriers to great crested newt movements between ponds and the site, as detected during the walkover survey;
 - Distance of ponds from the site, and the potential influence of the proposed development of the site on any populations of great crested newt (if present at ponds), using the Natural England rapid risk assessment tool; and
 - Presence of other ponds which may form metapopulations and/or alter the influence of the site on ponds at greater distances.

Pond 1

2.4.11 Pond 1 lies within the garden at the site. Pond 1 was assessed using the Habitat Suitability Index (HSI) (Oldham, et al., 2000). The pond was examined with reference to the ten HSI scoring criteria, which are: **SI₁**: Geographical location; **SI₂**: Pond area; **SI₃**: Pond drying; **SI₄**: Water quality (as indicated by the diversity of aquatic plants and invertebrates); **SI₅**: Shade; **SI₆**: Waterfowl; **SI₇**: Fish; **SI₈**: Abundance of other ponds within a one kilometre radius; **SI₉**: Quality of terrestrial habitat; and **SI₁₀**: Macrophyte cover (i.e. aquatic and emergent plants). The survey was conducted in accordance with *ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index. Amphibian and Reptile Groups of the United Kingdom* (ARG UK, 2010).

2.4.12 The assessment followed guidance in relation to interpreting HSI scores, following the categorical scale shown below.

Table 2.5: Pond Habitat Suitability Index Categories

HSI Score	Pond Suitability for Great Crested Newt
<0.5	Poor
0.5 – 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

Pond 2

2.4.13 Pond 2 is dry. No sign of the presence of a pond was found.

Ponds 3 and 4

2.4.14 Ponds 3 and 4 are located over 230 metres from the site boundary and on the opposite side of Old Nab Road. In consideration of the size of the site (0.4 hectares), the distance between the ponds and the site and the presence of the road and features such as walls which in isolation may not be significant barriers to newt dispersal but in combination with the distance to the site it is reasonably concluded that Ponds 3 and 4 are located at a sufficient distance that they are outside the potential zone of influence of the property extension proposals and no further consideration is required. This assessment is supported by the application of the Natural England Rapid Risk Assessment Tool (refer to **Table 2.6**). The rapid risk assessment tool assumes that great crested newt are present it also assumes, as a worst case, that the whole of the 0.4 hectare site will be affected by the works (which is not the current intention of the proposals).

Table 2.6: Rapid Risk Assessment Result³

Component	Likely Effect	Notional Offence Probability Score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	0.01 - 0.1 ha lost or damaged	0.1
Land >250m from any breeding pond(s)	0.01 - 0.1 ha lost or damaged	0.005
Individual great crested newts	No effect	0
	Maximum:	0.1
Rapid risk assessment result:	GREEN: OFFENCE HIGHLY UNLIKELY	

³ Extracted from GCN Method Statement WML-A14-2 (Version April 2020) (Natural England, 2020)

Reptile Species

- 2.4.15 The site and its surroundings were assessed in terms of their suitability for use by reptile species using the important characteristics for reptiles outlined in the draft document '*Reptile Mitigation Guidelines*' (Natural England, 2011), and the *Reptile Habitat Management Handbook* (Edgar, et al., 2010). These habitat characteristics are outlined below.

Table 2.7: Important Habitat Characteristics for Reptiles

1. Location (in relation to species range)	7. Connectivity to nearby good quality habitat
2. Vegetation Structure	8. Prey abundance
3. Insolation	9. Refuge opportunity
4. Aspect	10. Hibernation habitat potential
5. Topography	11. Disturbance regime
6. Surface geology	12. Egg-laying site potential

2.5 Survey and Reporting Limitations

- 2.5.1 No survey limitations or access restrictions were experienced.
- 2.5.2 All measurements within this report are approximate and have been either estimated whilst on site or calculated using mapping software (QGIS) or internet-based mapping services such as MAGiC and Google Earth.

2.6 Evaluation Methods

- 2.6.1 The habitats, vegetation and animal life were evaluated with reference to standard nature conservation criteria as described in *A Nature Conservation Review* (Ratcliffe, 1977). These are size (extent), diversity, naturalness, rarity, fragility, typicality, recorded history, position in an ecological or geographical unit, potential value and intrinsic appeal.
- 2.6.2 Habitats have been assessed to determine whether they meet those described in *UK Biodiversity Action Plan: Priority Habitat Descriptions* (Maddock, A (ed), 2008); these lists are used to help draw up the statutory lists of Priority Habitats, as required under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006*. Where suitable, the ecological value of the habitats present have been assessed using the terms outlined in *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018).
- 2.6.3 Government advice on wildlife, as set out in the *National Planning Policy Framework* (Ministry of Housing, Communities and Local Government, 2019) and associated government circulars has been taken into consideration. Legislation relating to protected species, such as those listed under Schedules 1, 5, 6 and 8 of the *Wildlife and Countryside Act 1981* (as amended) and *The Conservation of Habitats and Species Regulations 2017*, is referenced where applicable, and any impacts to protected species are evaluated in accordance with current guidance.
- 2.6.4 The presence of any Priority Species as listed under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006* is noted, and habitats are assessed in terms of their suitability and value for these species. The presence of species listed by the Lancashire BAP Provisional Long List has been considered in the evaluation of the site.

3.0 SURVEY RESULTS

3.1 Desktop Study and Data Search

Statutory Designated Sites for Nature Conservation and SSSI Impact Risk Zones

3.1.1 The site and adjacent land have no statutory designation for nature conservation.

3.1.2 The site lies within a Site of Special Scientific Interest (SSSI) Impact Risk Zone for Harper Clough and Smalley Delph Quarries SSSI, located 1.8 kilometres to the south. The SSSI Impact Risk Zone requires the Local Planning Authority to consult with Natural England on likely risks from the following development categories (Ordnance Survey, 2021):

<i>“Infrastructure</i>	<i>Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals.</i>
<i>Minerals, Oil and Gas</i>	<i>Planning applications for quarries, including: new proposals, Review of Minerals Permissions, extensions, variations to conditions etc. Oil and gas exploration/extraction.</i>
<i>Waste</i>	<i>Landfill. Including: inert landfill, non-hazardous landfill, hazardous landfill.</i>
<i>Water Supply</i>	<i>Large infrastructure such as warehousing / industry where total net additional gross internal floorspace following development is 1,000m² or more.”</i>

Non-statutory Designated Sites for Nature Conservation

3.1.3 The site has no non-statutory designation for nature conservation. As illustrated on **Figure 1** and described at **Table 3.1**, the site lies adjacent to Cronshaw Chair Biological Heritage Site (BHS) and four other non-designated sites for nature conservation lie within 2 kilometres of the site, as summarised below:

Table 3.1: Non-statutory Designated Sites for Nature Conservation within a 2 kilometre Radius

Site Name	Distance from Site Boundary	Reason for Designation
Cronshaw Chair BHS	Adjacent to eastern site boundary	Narrow strip of common land adjoining Whalley Old Road, Billington. The site is noteworthy for the presence of invertebrates including the Green Hairstreak butterfly and the Birch Sawfly. The site was quarried in the past with the mounds and hollows having since been colonised by heathland communities dominated by Heather and Bilberry, Gorse and Willow scrub and developing Birch-Oak woodland.
Dean Clough Reservoir BHS	525 metres	Two adjacent reservoirs and surrounding habitat, occupying a valley lying between Great Harwood (to the south-east) and Langho (to the north-west). The two reservoirs are separated by a small dam. The site is important for the presence of breeding little grebe, a scarce breeding species in Lancashire.
Smalley's Farm BHS	720 metres	A complex of approximately 4 hectares of species-rich pastures, bounded by hedgerows, streams and small wooded cloughs, lying immediately to the south of Billington, near Whalley. The fields are predominantly neutral and poorly drained, with some areas of acid grassland, particularly along the field boundaries. Collectively and individually, these fields represent one of the most diverse sites known in the country for grassland fungi.
Dean Wood and Higher Dean Wood	1230 metres	Two semi-natural ancient woodlands following the course of Dean Brook, a tributary of the River Calder. The woodlands are separated by Dean Lane. Dean Wood and Higher Dean Wood are ancient semi-natural woodlands listed in the Lancashire Inventory of Ancient Woodland (Provisional), (English Nature, 1994).
Parsonage Reservoir BHS	1685 metres	A reservoir straddling the boundary between the districts of Hyndburn and Ribble Valley. The site is important for the presence of water-purslane, a species that is included in the Provisional Lancashire Red Data List of Vascular Plants.

Priority Habitat Inventory

- 3.1.4 No areas of the site are identified as Priority Habitat on MAGiC map. The woodlands either side (north-east and south-west) of the site are identified as Lowland Mixed Deciduous Woodland Priority Habitat on MAGiC.

Protected and Notable Species

- 3.1.5 LERN hold no records of protected and notable species for the site. Records of protected and notable species for a 2 kilometre radius of the site are summarised below.

Table 3.2: Records of Protected Species Within a 2 Kilometre Radius of the Site

Taxon Group	Species Name and Designations ¹ and Notes
Terrestrial Mammal	<p>Brown hare (<i>Lepus europaeus</i>): PS 8 records, dated between 2009 and 2016, the closest of which is 820m from the site.</p> <p>Eurasian badger (<i>Meles meles</i>): PBA. 1 record, dated 2017, 1590m from the site.</p> <p>Common pipistrelle (<i>Pipistrellus pipistrellus</i>): 4 records, dated between 1986 and 2020, the closest of which is 540m from the site.</p> <p>West European hedgehog (<i>Erinaceus europaeus</i>): PS. 3 records, dated between 2010 and 2019, the closest of which is 487m from the site.</p>
Amphibian	<p>Common frog (<i>Rana temporaria</i>): 1 record, dated 1988, 1257m from the site.</p>
Bird	<p>Black-tailed godwit (<i>Limosa limosa</i>): WCAs1 & PS. 2 records, dated 1968 and 1990, the closest of which is 812m from the site.</p> <p>Fieldfare (<i>Turdus pilaris</i>): WCAs1. 1 record, dated 1968, 812m from the site.</p> <p>Garganey (<i>Anas querquedula</i>): WCAs1. 2 records, dated 1968 and 1990, the closest of which is 812m from the site.</p> <p>Goldeneye (<i>Bucephala clangula</i>): WCAs1. 2 records, dated 1968 and 1990, the closest of which is 812m from the site.</p> <p>Green sandpiper (<i>Tringa ochropus</i>): WCAs1. 1 record, dated 1968, 812m from the site.</p> <p>Greenshank (<i>Tringa nebularia</i>): WCAs1. 2 records, dated 1968 and 1990, the closest of which is 812m from the site.</p> <p>Kingfisher (<i>Alcedo atthis</i>): WCAs1. 1 record, dated 1968, 812m from the site.</p> <p>Little ringed plover (<i>Charadrius dubius</i>): WCAs1. 1 record, dated 1999, 1890m from the site.</p> <p>Osprey (<i>Pandion haliaetus</i>): WCAs1 2 records, dated 1968 and 1990, the closest of which is 812m from the site.</p> <p>Pintail (<i>Anas acuta</i>): WCAs1. 1 record, dated 1968, 812m from the site.</p> <p>Redwing (<i>Turdus iliacus</i>): WCAs1. 1 record, dated 1968, 812m from the site.</p> <p>Scaup (<i>Aythya marila</i>): WCAs1 & PS. 2 records, dated 1968, the closest of which is 812m from the site.</p> <p>Spotted crane (<i>Porzana porzana</i>): WCAs1. 1 record, dated 1968, 812m from the site.</p> <p>Whooper swan (<i>Cygnus cygnus</i>): WCAs1. 1 record, dated 1968, 812m from the site.</p> <p>Wood sandpiper (<i>Tringa glareola</i>): WCAs1. 1 record, dated 1968, 812m from the site.</p> <p>PS Species Only</p> <p>Bullfinch (<i>Pyrrhula pyrrhula</i>), cuckoo (<i>Cuculus canorus</i>), curlew (<i>Numenius arquata</i>), dunnock (<i>Prunella modularis</i>), grasshopper warbler (<i>Locustella naevia</i>), grey partridge (<i>Perdix perdix</i>), herring gull (<i>Larus argentatus</i>), house sparrow (<i>Passer domesticus</i>), lapwing (<i>Vanellus vanellus</i>), lesser redpoll (<i>Acanthis cabaret</i>), reed bunting (<i>Emberiza schoeniclus</i>), ring ouzel (<i>Turdus torquatus</i>), skylark (<i>Alauda arvensis</i>), song thrush (<i>Turdus philomelos</i>), spotted flycatcher (<i>Muscicapa striata</i>), starling (<i>Sturnus vulgaris</i>), tree sparrow (<i>Passer montanus</i>), wood warbler (<i>Phylloscopus sibilatrix</i>) and yellow wagtail (<i>Motacilla flava</i>).</p>
Insect (Moth)	<p>PS Species Only</p> <p>Cinnabar (<i>Tyria jacobaeae</i>), dusky brocade (<i>Apamea remissa</i>), grey dagger (<i>Acronicta psi</i>) and white ermine (<i>Spilosoma lubricipeda</i>).</p>
<p>¹Key to Designation Codes:</p> <p>EPS = European Protected Species under the <i>Conservation of Habitats and Species Regulations 2017</i>.</p> <p>WCAs1 = Species receives full protection under Schedule 1 of the <i>Wildlife and Countryside Act 1981</i> (as amended).</p> <p>WCAs5 = Species receives full protection under Schedule 5 of the <i>Wildlife and Countryside Act 1981</i> (as amended).</p> <p>PBA92 = Protection of Badger Act 1992.</p> <p>PS = Priority Species listed under Section 41 of the NERC Act 2006.</p> <p>LBAP = Species listed on the Lancashire Biodiversity Action Plan Provisional Long List.</p>	

- 3.1.6 The presence of these protected and notable species within the wider area has been taken into account throughout this report.

3.2 Vegetation and Habitats

General Description

- 3.2.1 The approximately 0.4 hectare site is located within rural surroundings to the south-east of Whalley Old Road to the east of the village of Old Langho. The site comprises a large, detached house with outbuilding, summerhouse, garage and a dilapidated former kennel building bordered by mature lawns and herbaceous borders with mature and semi-mature trees.
- 3.2.2 A Phase 1 Habitat Survey map is appended at **Figure 2**. Photographs are appended at **Table 8.1**. A plant species list for the whole site is appended at **Table 8.2**.

Buildings

- 3.2.3 The buildings are described in terms of their suitability for use by roosting bats in **Section 3.3**.

Garden Area

- 3.2.4 Refer to **Photos 1 to 4**. The house is on raised ground bordered by hardstanding and established herbaceous borders and raised beds with shrubs and ornamental plants such as Rose of Sharon (*Hypericum calycinum*), Heather (*Calluna* sp.), ornamental conifer species, Welsh Poppy (*Papaver cambricum*), *Hebe* species, Hazel (*Corylus avellana*), Tutsan (*Hypericum androsaemum*), London's Pride (*Saxifraga × urbium*) and Ivy (*Hedera helix*).
- 3.2.5 A stone wall with a parallel Cherry Laurel (*Prunus laurocerasus*) hedgerow is present along the frontage of the site. Between the wall and Whalley Old Road is a narrow (0.8 metres wide) verge colonised by an abundant Pink Crane's-bill (*Geranium* sp.) species with frequent Yorkshire-fog (*Holcus lanatus*), False Oat-grass (*Arrhenatherum elatius*) and locally frequent Common Nettle (*Urtica dioica*), Welsh Poppy and occasional Common Hogweed (*Heracleum sphondylium*). Rupestral plants growing in the wall comprise occasional Wall-rue (*Asplenium ruta-muraria*) and Herb-Robert (*Geranium robertianum*).
- 3.2.6 To the rear of the house are two lawn areas (separated by a stone retaining wall owing to the change in levels). The lawns are characterised by constant and abundant Perennial Rye-grass (*Lolium perenne*), Yorkshire-fog, Creeping Buttercup (*Ranunculus repens*) and White Clover (*Trifolium repens*) with frequent Self-heal (*Prunella vulgaris*), Ribwort Plantain (*Plantago lanceolata*), Rough Meadow-grass (*Poa trivialis*) and Dandelion (*Taraxacum officinale* agg.). Common Mouse-ear (*Cerastium fontanum*), Daisy (*Bellis perennis*) and Marsh Thistle (*Cirsium palustre*) are present occasionally.
- 3.2.7 Mature and semi-mature trees present in the herbaceous borders and around the margins of the lawned area comprise a mature Lime (*Tilia* sp.) at the eastern corner, a cluster of Whitebeam (*Sobrus* sp.) and Sycamore (*Acer pseudoplatanus*) with an understorey of Bramble (*Rubus fruticosus* agg.) at the northern corner, a row of Horse Chestnut (*Aesculus hippocastanum*), Lime and Sycamore at the south-eastern boundary and a Weeping Willow (*Salix* sp.) at Pond 1 with Rhododendron (*Rhododendron ponticum*) shrubs to the south. Other shrubs and trees scattered throughout the garden comprise a Monkey Puzzle (*Araucaria araucana*) tree, ornamental conifers, *Mahonia* species, Silver Birch (*Betula pendula*) and Yew (*Taxus baccata*).

- 3.2.8 Between the garage and the outbuilding is a raised bed of planted trees and shrubs characterised by Garden Privet (*Ligustrum ovalifolium*), Grey Willow (*Salix cinerea*) and Blackthorn (*Prunus spinosa*) with an understorey of Broad Buckler-fern (*Dryopteris dilatata*) and Bramble.

Pond 1

- 3.2.9 Refer to **Photos 5 and 6**. Pond 1 is an on-line garden pond and appears to be fed by surface water run-off from the field to the south-east. There is no open water at the pond and the hollow is entirely covered by aquatic and emergent vegetation comprising very abundant and constant Water Lily (*Nymphaea* sp.) and Bogbean (*Menyanthes trifoliata*), locally abundant Common Duckweed (*Lemna minor*), Yellow Iris (*Iris pseudacorus*) and Variegated Reed Sweet-grass (*Glyceria* sp.).
- 3.2.10 The pond margins are overgrown with ornamental plant species such as *Hosta* species, Solomon's Seal (*Polygonatum × hybridum*) and fern species.

Off-site Woodland Habitats

- 3.2.11 There is no defined boundary between the garden and the woodland to the south-west. The woodland canopy is characterised by abundant and constant Sycamore with frequent Alder (*Alnus glutinosa*) and locally frequent Poplar (*Populus* sp.) species and Lime. Horse Chestnut and Ash (*Fraxinus excelsior*) are occasional. The shrub layer is very dense in places with abundant and constant Holly (*Ilex aquifolium*), frequent Rhododendron and occasional Elder (*Sambucus nigra*) and Rowan (*Sorbus aucuparia*).
- 3.2.12 Woodland herbs are well represented with frequent and constant Broad buckler-fern, locally frequent Wood Sorrel (*Oxalis acetosella*), occasional Hart's-tongue Fern (*Asplenium scolopendrium*) and Herb Robert, and rare Enchanter's Nightshade (*Circaea lutetiana*). The woodland, particularly the understorey, has affinities with the *W8 Fraxinus excelsior - Acer campestre – Mercurialis perennis* community of the NVC and is an example of Lowland Mixed Deciduous Woodland Priority Habitat.

Invasive Plant Species

- 3.2.13 No Japanese Knotweed is present within the site boundary, however, an established stand of Japanese Knotweed is present outside the north-eastern site boundary within the Cronshaw Chair BHS, refer to **Figure 2**. Japanese Knotweed was also detected in the woodland to the south-west of the site (approximately 40 metres from the site boundary).
- 3.2.14 Invasive plant species listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) within the site comprise:
- a. Variegated Yellow Archangel (*Lamium galeobdolon* subsp. *argentatum*) and Indian Balsam around the margins of Pond 1;
 - b. Virginia Creeper (*Parthenocissus quinquefolia*) over the elevation walls of the garage;
 - c. Wall Cotoneaster (*Cotoneaster horizontalis*) in the herbaceous borders, particularly to the front of the house; and
 - d. Rhododendron in the garden landscape planting.
- 3.2.15 It is an offence to spread or to cause the spread of these species in the wild, refer to **Section 5.3**.

3.3 Bat Species

Habitat Assessment for Commuting and Foraging Bats

- 3.3.1 The unilluminated, established vegetation and pond within the garden curtilage and the habitats in the immediate surrounds, including the woodland habitats, provide optimal opportunities for a variety of species of foraging and commuting bats including pipistrelle (*Pipistrellus* sp.) species, brown long-eared (*Plecotus auritus*) and *Myotis* species. The site and surrounds are therefore considered to be of high suitability for use by foraging bat species.

Daylight Survey and Assessment

House

- 3.3.2 Refer to **Photos 7 to 19**. The house is a two storey block and white render covered property with pitched slate covered roofs. Two large bay windows are present either side of a flat roofed porch at the front (north western) elevation. Other windows comprise a mix of timber and plastic frames. All areas around the window frames are intact; no gaps or opportunities for bat access were found.
- 3.3.3 To the rear of the main house is a single storey area with a flat roof and attached to the eastern corner is a single storey annex with white render covered walls and a pitched slate covered roof. A gap suitable for bat access to the void beneath the ridge copings was noted at the ridge apex at the south-eastern facing gable end of the annex.
- 3.3.4 Examination of the eaves around the main roof of the house confirmed that this area is well sealed, refer to **Photo 11**. Elsewhere on the roof gaps suitable for bat access were noted at the lead flashing beneath the chimney, between the slates and beneath the ridge copings.
- 3.3.5 On the south-western and north-eastern elevations of the house are sheets of lead flashing covering air vents in the wall, refer to **Photo 12**. The flashing provides an opportunity for bat access; no bats were found behind these features and no bat droppings were found on the elevation wall or ground below the flashing.
- 3.3.6 The whole of the roof void over the house was accessed from one access hatch in the bathroom. The roof void is 3 metres high from floor to ridge board with lower areas (1.25 metres from floor to ridge) extending towards the windows at the front (north-western) elevation. The floor of the main area of the roof void is boarded and fibreglass insulation is present. the roof void is lined with bitumen undertile felt.
- 3.3.7 Refer to **Photos 16 to 18**. Bat droppings were found scattered throughout the floor of the roof void with a line of scattered droppings (100s) beneath the central ridge board. One brown-long eared bat was found at the roof timber extending from the main ridge towards the southern corner of the house [**Roost 1**] and one dead brown long-eared was found on the floor of the roof void. Although only one live bat was found during the daylight survey in July 2020, the number of scattered droppings indicates use over a long period and / or use by a larger number of bats at other times of year (although no piles or accumulations of a large number of droppings were recorded which can be indicative of the presence of a maternity roost).
- 3.3.8 The cellar comprising a 1.5 metre high void beneath the house was accessed; no bats or evidence of access by bats was found. No gaps or vents which would provide an opportunity for bats to enter the cellar from the external areas were found.
- 3.3.9 The house has a confirmed brown long-eared bat roost. Bat activity surveys were necessary to characterise the detected roost. In consideration of other bat species, particularly crevice roosting species

such as pipistrelle species, the house is assessed to be of moderate suitability owing to the presence of gaps at the roof slates and ridge copings, particularly at the single storey annex.

Outbuilding

- 3.3.10 Refer to **Photos 20 to 22**. The outbuilding is located to the east of the house and comprises a single storey brick building with a pitched slate covered roof and white render covered walls. Gaps and opportunities for bat access were noted beneath the ridge copings and between the slates.
- 3.3.11 The outbuilding is split into two areas internally with a brick partition wall. The internal areas are open to the underside of the roof with undertile felt present. The internal areas are light owing to the presence of windows. Examination of the internal sides of the brick walls confirmed that they are well-pointed and timber planks are present at the wall tops / wall plate to create sealed eaves.
- 3.3.12 In the context of the suitability of the surrounding habitats for the attraction of foraging bats, the outbuilding is assessed to be of moderate suitability for use by roosting bats.

Garage

- 3.3.13 Refer to **Photos 23 to 24**. The garage is a single storey irregularly shaped building constructed from brick and stone and supported by a steel frame with a sloping felt covered roof. Timber sarking is present beneath the roof covered. The external and internal sides of the walls are sealed or well pointed.
- 3.3.14 Refer to **Photos 25**. Attached to the northern elevation of the garage is a brick annex with a flat concrete slab covered roof. The concrete lintels and internal walls are well-sealed; no gaps or opportunities for crevice roosting bats were found.
- 3.3.15 No bats, droppings, prey remains or opportunities for bat access were found around the exterior or inside the garage. The garage is assessed to be of negligible suitability for use by roosting bats.

Former Kennel

- 3.3.16 Refer to **Photos 26 to 29**. To the north-west of the garage is a dilapidated overgrown area with concrete and stone steps. The steps lead to a row of former brick kennels constructed with a flat roof that is overgrown with vegetation.
- 3.3.17 To the north-east of this area is a dilapidated brick outbuilding with render covered walls and a sloping felt covered roof with timber boards beneath.
- 3.3.18 No bats, droppings, prey remains or opportunities for bat access were found around the exterior or inside the kennels or associated outbuilding. The former kennel area is assessed to be of negligible suitability for use by roosting bats.

Summerhouse

- 3.3.19 Refer to **Photo 30**. To the south-west of the house is a timber summerhouse with a timber frame and a timber shingle tile roof. No bats, droppings or evidence to indicate use of the summerhouse by roosting bats such as insect prey remains were found.
- 3.3.20 The roof of the summerhouse is partially damaged and many of the shingle tiles are missing. The summerhouse is assessed to be of negligible suitability for use by roosting bats.

Trees

3.3.21 No bats or evidence of previous use by roosting bats was detected at the trees at the site.

Bat Activity Surveys

3.3.22 Refer to **Tables 8.3 to 8.4**, appended.

3.3.23 At least five bat species (noctule, common pipistrelle, soprano pipistrelle, *Myotis* species and brown long-eared bat) were detected at the site during the surveys in August 2020.

3.3.24 Occasional passes of brown long-eared bat were detected during both surveys in August 2020 and the number of passes is consistent with use of the roof void at the house by a low number of brown long-eared bats [**Roost 1**]. The access / egress point to **Roost 1** (brown long-eared bat in the roof void above the main house) was not confirmed during the surveys. However, brown long-eared bats are known to use a number of roost access points to access a roof void, if available. It is confirmed that owing to the number of gaps beneath the ridge copings and between the slates, brown long-eared bats are able to use any of these features and this has been taken into consideration in the mitigation strategy at **Section 5.0**.

3.3.25 The bat activity surveys detected the following additional roosts:

Roost 2: Soprano pipistrelle (maximum 1 bat) roost beneath the ridge coping on the single storey annex at the eastern corner of the main house. The bat left the roost via a gap beneath the ridge at the south-western side;

Roost 3: Common pipistrelle roost (maximum 3 bats) beneath a ridge at the single storey annex at the eastern corner of the main house. The bats left the roost via a gap at the apex on the south-east facing gable end; and

Roost 4: Common pipistrelle roost (maximum 1 bat) beneath the ridge coping on the outbuilding. The bat left the roost via a gap beneath the ridge coping at the south-eastern side.

3.3.26 Owing to the size of the roosts and the time of year the roosts were detected it is reasonable to consider that Roosts 1, 2 and 4 are day roosts. Roost 3 (maximum of 3 bats) may be a small maternity roost or a satellite roost⁴. Netting surveys were not carried out to confirm the status of Roost 3.

3.3.27 The noctule bat passes were high over the site; no evidence of use of the site by roosting noctule was found. Similarly, only occasional *Myotis* species passes were recorded to indicate *Myotis* bat use of the site to forage; no evidence of use of the site by roosting *Myotis* was found.

3.4 Other Animal Life

Badger

3.4.1 No evidence of badger activity was detected at the site; the proposals can be achieved with no adverse effect on badger.

⁴ 'Satellite roost – where breeding females roost close to the main nursery colony in the breeding season as confirmed at <https://www.gov.uk/guidance/bats-surveys-and-mitigation-for-development-projects#when-and-how-to-survey-roosts>

Bird Species

Barn Owl

3.4.2 No evidence of use of the buildings by roosting or nesting barn owl was found.

Other Bird Species

3.4.3 Evidence of use of the garage (old nests) by nesting birds was detected.

Habitat Assessment

3.4.4 The established trees and shrubs within the site and the woodland outside the site boundaries provide favourable habitat for nesting and foraging passerine (perching) bird species including Priority Species such as song thrush and dunnock.

3.4.5 The woodlands bordering the site are suitable for nesting tawny owl (*Strix aluco*) which was audible in the wider area and was observed flying over the site during the dusk emergence survey on 11th August 2020 and other woodland specialist species such as nuthatch, treecreeper and woodpecker species.

Great Crested Newt

3.4.6 The Habitat Suitability Index assessment for Pond 1 is presented below.

Table 3.3: Habitat Suitability Index Assessment at Pond 1

Criteria	Description	Pond 1	Score ¹
SI ₁	Location	Optimal	1
SI ₂	Pond area	75	0.05
SI ₃	Permanence	Sometimes dries	0.5
SI ₄	Water quality	Moderate	0.67
SI ₅	Shade	100%	0.2
SI ₆	Waterfowl	Absent	1
SI ₇	Fish	Possible	0.67
SI ₈	Pond count ²	2.23	0.96
SI ₉	Terrestrial habitat	Poor	0.67
SI ₁₀	Macrophyte cover	5%	0.8
Assessment Result:		Below average	0.51

¹Calculated by $(SI_1 \times SI_2 \times SI_3 \times SI_4 \times SI_5 \times SI_6 \times SI_7 \times SI_8 \times SI_9 \times SI_{10})^{1/10}$
²Ponds within an unobstructed one kilometre radius

3.4.7 Pond 1 scores 'below average' suitability for use by great crested newt. It is recognised that a great crested newt presence / absence survey has not been carried out (and was not possible owing to the time of year the surveys were commissioned), however, in consideration of the HSI score, the conditions at the garden pond, the absence of any known records of great crested newt in area (as confirmed by the data search) and the absence of any other ponds within an unobstructed 250 metre radius of Pond 1 which may act as a source of a wider great crested newt metapopulation, the likelihood of great crested newt at Pond 1 is minimal.

3.4.8 For the protection of other fauna that may be associated with Pond 1 and in accordance with best practice, a series of general reasonable avoidance measures for the protection of wildlife during the construction phase are outlined in **Section 5.2**.

Reptiles

- 3.4.9 There are no reported records of reptiles for the site or the nearby land (refer to **Table 3.2**). The site is not adjacent to or linked to any areas of favourable habitat for reptile species. The presence of reptiles within the site is reasonably discounted.

4.0 EVALUATION AND ASSESSMENT

4.1 Introduction and Description of Proposals

- 4.1.1 The site proposals as outlined on *Zara Moon Architects drawings 97.20.06 to 10* comprise:

- a. The demolition of the former kennel, garage and outbuilding;
- b. Removal of the single storey annex on the eastern corner of the main house;
- c. Extension of the main house to the south-east and north-east including the installation of one roof light;
- d. Replacement of windows and doors at the main house;
- e. The relocation of the summerhouse; and
- f. The re-profiling of the garden with associated landscape planting (around the immediate curtilage of the extended house only, the trees and shrubs and existing planting in the wider garden area will be retained).

- 4.1.2 It is confirmed that the main house and the large roof void will be retained.

- 4.1.3 **Sections 4.2 to 4.4** of this report identify the ecological considerations and an assessment of impacts based on the results of the baseline ecological surveys. This evaluation has informed the guidance, recommendations and mitigation strategies provided at **Section 5.0**.

4.2 Designated Sites for Nature Conservation

- 4.2.1 Owing to the distance between the site and any statutory designated sites for nature conservation within the wider area and the absence of habitat and hydrological connectivity, direct and indirect effects on any statutory designated sites are reasonably discounted.

- 4.2.2 The proximity of the site to Cronshaw Chair Biological Heritage Site is recognised. The residential garden does not currently support the larval food plants typically used by the features of special interest at the BHS (namely green hairstreak butterfly). It is reasonably concluded that the proposals will not have a direct impact on the BHS or its features of special interest.

- 4.2.3 Indirect effects on the Cronshaw Chair BHS associated with potential impacts such as shading, surface water run-off and disturbance as a result of recreational activities are avoided. It is not considered likely that minor disturbance works during the construction period will have a significant effect on the BHS and its features of special interest. As described in **Section 5.2** the presence of the BHS and the proximity to the construction site will be identified to all contractors and as part of the works and in accordance with best practice the appropriate protect measures (i.e. demarcation fencing and Toolbox Talks) will be secured by the proposals.

4.3 Vegetation and Habitats

- 4.3.1 The site contains only common and widespread plant species. The National Vegetation Classification (NVC) communities present are typical of the geographical area. None of the habitats within the proposed development site are representative of semi-natural habitat or are Priority Habitat.
- 4.3.2 The value of the mature woodland and the Priority Habitat status of the woodland bordering the site for the attraction of wildlife is recognised. Retention, and protection during construction, of the woodland habitats will be achieved by the proposals.
- 4.3.3 The mature and semi-mature trees within the site are of value as they provide opportunities for foraging bats (as demonstrated by the bat activity surveys) and nesting birds. The proposals will achieve the retention of the majority of the trees, with remedial works only required in accordance with the Tree Survey (Lakeland Tree Consultancy, August 2020).
- 4.3.4 The presence of four invasive plant species listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), within the site boundary and the presence of Japanese Knotweed beyond the site boundary is an essential consideration in connection with the proposals. The proposals provide an opportunity to achieve the control and management of these species, on land within the control of the applicant, to minimise the risk of further spread into the wild, refer to **Section 5.3**.

4.4 Protected Species and Other Wildlife

Bat Species

- 4.4.1 The kennel, garage and summerhouse are assessed to be of negligible suitability for use by roosting bats.
- 4.4.2 The house supports three bat roosts:
- Roost 1:** Brown long-eared bat day roost (maximum 1 bat) in the roof void at the house. Although owing to the number of droppings present a precautionary approach will be applied to ensure mitigation is appropriate as, based on the number of droppings present, it is possible that the roost is used by a higher number of bats at other times of the bat active season;
- Roost 2:** Soprano pipistrelle day roost (maximum 1 bat) beneath the ridge coping on the single storey annex at the eastern corner of the house; and
- Roost 3:** Common pipistrelle roost (maximum 3 bats) (possible dispersed maternity roost / satellite roost) beneath a ridge at the single storey annex at the eastern corner of the house.
- 4.4.3 The outbuilding supports one roost:
- Roost 4:** Common pipistrelle day roost (maximum 1 bat).
- 4.4.4 Owing to the type of construction the buildings are not assessed to be suitable for use by a significant number of bats in the hibernation season (although it is recognised that species such as brown long-eared bats may roost in large roof voids during the hibernation season and the mitigation strategy at **Section 5.4** takes this into consideration).
- 4.4.5 In the absence of mitigation, the proposed works will result in the following:
- a. Permanent loss / disturbance of Roosts 2 to 4 owing to the demolition of the single storey annex at the house (Roosts 2 and 3) and the demolition of the outbuilding (Roost 4); and

- b. Disturbance and modification of Roost 1 owing to the extension of the roof to the south-east and the proposed installation of the rooflight at the south-eastern roof pitch which will require construction of boxed off structure to ensure the remainder of the roof void is not lit and is suitable for use by bats.

4.4.6 As such, the demolition and extension works must only be carried out under a relevant Natural England European Protected Species Mitigation licence issued under Regulation 55 of *The Conservation of Habitats and Species Regulations 2017*.

4.4.7 In accordance with the *Bat Mitigation Guidelines* (Mitchell-Jones, 2004) and current Natural England guidance⁵ the destruction of day roosts and a possible satellite roost used by a low number of common species of bat is a low to moderate scale of impact.

4.4.8 It is advised that mitigation for the identified roosts in accordance with relevant Natural England guidance and licensing requirements are entirely feasible within the remit of the proposals, refer to **Section 5.4**.

Survey Effort

4.4.9 Based on the bat activity recorded in 2020 it is considered that appropriate and proportionate survey effort has been carried out to inform the feasibility of the proposals, characterise the detected roosts and inform the preparation of a bat mitigation strategy and planning decision, refer to **Section 5.4**.

4.4.10 Dependent on the proposed date of commencement of works, updated bat activity surveys in the appropriate survey season may be required to inform a future Natural England licence application (once planning permission is obtained).

4.4.11 The guidance at **Sections 5.2** and **5.6** in relation to the sympathetic use of lighting and the landscape proposals aims to ensure that the development proposals do not adversely affect the opportunities for foraging bats (and fauna such as tawny owl) at the site and local area.

Nesting Birds

4.4.12 In the absence of mitigation, the proposals may affect habitats suitable for use by nesting birds. Mandatory actions to protect nesting birds during site clearance and measures to provide compensatory opportunities for nesting birds are recommended at **Sections 5.5** to **5.6** and can be achieved by the proposals.

Other Protected Species

4.4.13 Appropriate survey effort and / or assessment in accordance with standard guidance, has been carried out to reasonably discount adverse effects on other relevant protected species namely badger, barn owl, great crested newt and reptile species.

⁵ <https://www.gov.uk/guidance/bats-surveys-and-mitigation-for-development-projects#assess-the-impacts>

5.0 RECOMMENDATIONS AND ECOLOGICAL ENHANCEMENT

5.1 Introduction

- 5.1.1 The recommendations described below aim to ensure that the development is implemented in accordance with relevant wildlife legislation, Natural England guidance, the principles of the National Planning Policy Framework (NPPF), local planning policy and best practice.
- 5.1.2 The recommendations are appropriate and proportionate to the scale of the proposals and the ecological baseline conditions. Where possible, opportunities to achieve benefits for biodiversity through appropriate habitat creation have been identified, as required by the NPPF and other relevant planning documents.

5.2 Recommendations in Relation to General Site Design and Protection of Existing Habitats

Toolbox Talk

- 5.2.1 Prior to the commencement of works at Toolbox Talk will be provided to all contractors the talk will provide all details of the ecological protection required at the site, including confirmation of the presence of the adjacent BHS.

Protection of the Biological Heritage Site

- 5.2.2 Following demolition of the garage and former kennel area a demarcation fence will be installed to identify the boundary of the construction area and to protect the BHS.

Pond and Tree and Shrub Protection

- 5.2.3 It is recommended that the existing trees and shrubs on the site boundary are retained, where possible.
- 5.2.4 During the construction phase, and where works will be carried out in proximity to the trees and shrubs to be retained, temporary protective demarcation fencing will be used to protect the trees and shrubs and their associated root protection zone. The fencing must extend outside the canopy of the retained trees and must remain in position until works are completed to ensure protection is provided throughout the construction phase.
- 5.2.5 The fencing will be installed in accordance with *BS5837:2012 Trees in Relation to Design, Demolition and Construction: Recommendations* (BSI, 2012).
- 5.2.6 It is also recommended that the pond area is protected by temporary demarcation fencing during the works.

Lighting Design

- 5.2.7 Paragraph 180, bullet point 'c' in Chapter 15 (conserving and enhancing the natural environment) of the NPPF states that development should:

'limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'

Development Lighting Design

- 5.2.8 The lighting scheme to be implemented at the site must involve the use of appropriate products and screening, where necessary, to ensure no excessive artificial lighting shines over the retained trees and shrubs, existing roosts and accesses, compensatory habitats for roosting bats (including roost accesses) and nesting birds, as lighting overspill may deter use by wildlife such as foraging bats.
- 5.2.9 The lighting scheme will be designed with reference to current guidance, namely:
- a. *Guidance Note 8: Bats and Artificial Lighting in the UK* (Institution of Lighting Professionals & Bat Conservation Trust, 2018); and
 - b. *Bats and lighting: Overview of current evidence and mitigation guidance* (Stone, 2014).

Reasonable Avoidance Measures to be Implemented During Construction

- 5.2.10 In addition to the mandatory measures to be applied in relation to invasive plant species (**Section 5.3**), roosting bats (**Section 5.4**) and nesting birds (**Section 5.5**) owing to the habitats present in the garden it is recommended that the following reasonable avoidance measures are implemented during the construction phase:
- a. Removal of tree and shrub stumps (if needed) outside the winter period (to avoid the risk of disturbing hibernating amphibians);
 - b. During the works, any holes, trenches or other pits which amphibians or wildlife such as hedgehog could fall into must be covered overnight, or have sloped banks or ramps suitable for their escape;
 - c. Avoidance of the use of chemicals (such as fertilisers and herbicides) harmful to wildlife;
 - d. Avoidance of leaving piles of demolition material for long periods (and removal / crush and compaction as soon as possible);
 - e. Careful storage of construction materials such as ensuring that pipes are left with caps on and materials are stored above ground (i.e. on pallets) as much as possible; and
 - f. Avoidance of lighting fires on site.

5.3 Invasive Plant Species

- 5.3.1 The proposals provide an opportunity to achieve the local control of Variegated Yellow Archangel, Wall Cotoneaster, Virginia Creeper and Indian Balsam to prevent further spread into the wild. A development proposal will need to be accompanied by an Invasive Plant Species Management Plan commitment (which can be secured by planning condition). Based on the species present this is likely to involve ensuring the plants are grubbed out to the roots and buried within the site at a depth to ensure no re-growth.
- 5.3.2 All contractors will be made aware of the proximity of the works to the off-site Japanese Knotweed. It may be necessary for an invasive plant species specialist to supervise any excavation works at the northern corner of the site to ensure no rhizomes are exposed or transferred off site or around the site.

5.4 Bats

Natural England Licensing Requirements

- 5.4.1 Owing to the presence of four roosts and the protection afforded to bats and their roosts, the works at the house and the outbuilding must only be carried out under an appropriate Natural England licence

granted under Regulation 55 of *The Conservation of Habitats and Species Regulations 2017* (as amended). The licence permits the destruction and modification of the roosts and disturbance of bats which would otherwise be an offence.

- 5.4.2 To achieve the licence the applicant must be able to demonstrate to Natural England that the following three tests of Regulation 55 of *The Conservation of Habitats and Species Regulations 2017* will be satisfied.

Test 1: That the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range [Regulation 55 (9)(b)];

Test 2: Demonstration that the proposals for which a licence is sought are for the purposes of '*preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment*' [Regulation 55(2)(e)]; and

Test 3: Consideration of '*There is no satisfactory alternative*' including the implications of the '*do-nothing*' option [Regulation 55(9)(a)].

- 5.4.3 The outlined mitigation strategy below aims to demonstrate that compliance with Test 1 is achievable. Input from a planning consultant will be required in consideration of Tests 2 and 3.
- 5.4.4 The bat mitigation strategy outlined below demonstrates how roosting and foraging bats will be accommodated at the site and is appropriate to inform the planning decision.
- 5.4.5 An application for a Natural England licence can only be carried out once planning permission has been obtained and all wildlife-related conditions have been discharged.

Mitigation Strategy

Introduction

- 5.4.6 This mitigation strategy draws on the following resources:
- a. Current Natural England guidance;
 - b. Information presented in the *BCT Mitigation Conference Proceedings* (BCT, January 2017) and the *Mitigation Case Studies Forum* (BCT, January 2017);
 - c. Implemented and monitored activities / specifications carried out by ERAP (Consultant Ecologists) Ltd at other sites / properties; and
 - d. Information presented on the 'Roost' website provided by the Bat Conservation Trust.

Timing of Works

- 5.4.7 In accordance with best practice it is recommended that works to remove the single storey access (i.e. works that will affect Roosts 2 and 3) are carried out outside the maternity season. Works on the other buildings can be carried out at any time of year (subject to the results of the pre-works inspections, particularly in relation to informing works that will affect Roost 1).

Works to Be Carried Out Prior to Commencement

- 5.4.8 Prior to the commencement of works and to ensure a suitable feature is present at the site to receive any bats found during the works, four bat boxes will be installed on suitable trees within the site, refer to **Figure 4**.

Toolbox Talk

- 5.4.9 Prior to the commencement of works the licensed ecologist will inform all contractors of the following:
- a. The wildlife legislation and protection afforded to bats and their roosts;
 - b. The location of the recorded roosts and their status;
 - c. The presence of the licence and the associated method statement and the need to abide by the content;
 - d. The licensable actions;
 - e. Good working practices;
 - f. The presence of any provisions for roosting bats installed in advance of the works and the need for them to remain undisturbed;
 - g. The protocol to be followed if a bat is discovered when the licensed ecologist is not on site; and
 - h. An outline of the proposals and timescales.

Works at Roost 1

- 5.4.10 Works that will affect Roost 1 comprise the extension of the roof into the extended property and the installation of the rooflight to direct light into the first floor dressing room. These works are likely to involve the temporary disturbance and therefore passive exclusion of the roof void and Roost 1 to brown long-eared bats. The following actions are necessary:
- a. Prior to works that involve opening up the roof covering at the main house a pre-works inspection for roosting bats will be carried out and the licensed ecologist will provide guidance;
 - b. The roof light to be installed at the south-western side of the roof void must be boxed in to ensure that only the first floor room is illuminated and the roof void remains dark;
 - c. The likely bat access positions to the roof void will be identified and conserved. If the likely accesses cannot be determined then care will be taken to ensure access from the ridge coverings, through overlaps in the undertile felt into the roof void are created;
 - d. It is essential that spotlights or other light fittings to be installed in the ceilings of the first floor rooms do not illuminate the floor of the roof void. If needed the area around the upper side of the light fittings must be covered / boxed in;
 - e. It is essential that only hessian backed (Type 1F) undertile felt is used in the roof voids accessible to bats (owing to entanglement issues breathable membranes must not be used);
 - f. Any roof timber treatment works must avoid products that are harmful to bats and wildlife; and
 - g. No additional structures that might affect flying space in the roof void must be installed.

Capture and Exclusion During Works at Roosts 2 to 4

Roosts 2, 3 and 4

- 5.4.11 The licensed ecologist must be present during the careful removal / soft strip of the roof coverings in the vicinity of Roosts 2 to 4 and all other features with suitability for use by roosting bats. Roof tiles / slates and ridge copings must be lifted (rather than slid) and the underside of the roof coverings and backside of the stones will be checked for bats prior to discard / stacking.

Other Areas

- 5.4.12 If a bat is present or found in other areas of the site during the works the licensed ecologist will carefully collect the bat (using a hand held static net or by direct handling), place the bat in an appropriate container and transfer the bat(s) to the bat box or release at the site later the same day.

Discovery of a Bat

- 5.4.13 If at any time during the works a bat is discovered or suspected when the licensed bat surveyor is not on site all contractors must withdraw from the area and ERAP (Consultant Ecologists) Ltd (01772 750502) or the Bat Conservation Trust / Natural England must be contacted for further guidance.

Installation of Bat Roost Provisions at the Property

- 5.4.14 To secure the conservation of opportunities for roosting bats it is recommended that provisions for roosting bats are provided at the extended house. Recommendations are provided at **Figure 4**.

Mechanism for Ensuring Implementation / Success

- 5.4.15 If the licensed ecologist has any concerns regarding the quality of workmanship or there is non-compliance with the Natural England licence, the Mitigation Strategy and / or guidance provided by the licensed ecologist then this will result in additional site visits to make inspections.
- 5.4.16 It is always the intention to ensure all parties are aware of the importance of the Natural England licence and compliance with the Mitigation Strategy and this is achieved through good communication. However, in extreme / significant cases of non-compliance the licensed bat surveyor will report the issue to Natural England and further action may be taken.

Post-development Interference Impacts and Mitigation

- 5.4.17 The risk of post-development interference impacts has been minimised by designing in the provisions for roosting bats in liaison with the property owners and by providing guidance to the current property owners on the protection afforded to bats and their roosts and nesting birds.

Monitoring

- 5.4.18 There may be a post-development monitoring requirement under the Natural England licence.

5.5 Nesting Birds

Protection of Nesting Birds

- 5.5.1 All wild birds are protected under the *Wildlife and Countryside Act 1981* (as amended) while they are breeding. It is an offence to kill, injure or take any wild bird, take damage or destroy the nest for any wild bird whilst the nest is in use or being built and take or destroy the egg or any wild bird.
- 5.5.2 If breeding birds are detected the ecologist will issue guidance in relation to the protection of the nesting birds in conjunction with the scheduled works. This may involve cordoning off an area of the site until the young birds have fledged.

Enhancing Opportunities for Nesting Birds

5.5.3 The proposals provide an opportunity to accommodate provisions for nesting birds at the retained trees as part of good design.

5.5.4 Suggestions, including provisions for nesting tawny owl, are provided on **Figure 4**.

5.6 Landscape Planting

5.6.1 The established gardens at Whins Lodge provide favourable opportunities for use by foraging bats and other wildlife. It is recommended that the landscape planting to be reinstated about the extended property complement the existing habitats and maximise the use of native species and species known to be of value for the attraction of wildlife as much as possible.

5.6.2 The landscape planting may also be an opportunity to plant the larval food plants of the green hairstreak butterfly (reported to be present at the adjacent Cronshaw Chair BHS) such as Alder Buckthorn (*Frangula alnus*), Bilberry (*Vaccinium myrtillus*), Broom (*Cytisus scoparius*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Common Rock-rose (*Helianthemum nummularium*), Cross-leaved Heath (*Erica tetralix*) and Dogwood (*Cornus sanguinea*).

6.0 CONCLUSION

6.1 This ecological survey and assessment has demonstrated that the demolition and extension proposals at Whins Lodge can be achieved with no adverse effect on designated sites for nature conservation and ecologically valuable habitats. Mitigation for protected species namely roosting bats and nesting birds is feasible.

6.2 The comprehensive mitigation strategy outlined in **Sections 5.4** demonstrates that mitigation for roosting bats and conservation of habitats for these species at the site in the long-term is entirely feasible. The 'three tests' of *The Conservation of Habitats and Species Regulations 2017* will be met and the appropriate Natural England licence will be obtained to facilitate the works.

6.3 Other actions for the protection of wildlife, namely nesting birds, can be secured by an appropriately worded planning condition / informative. Measures to protect other features at the site namely the off-site woodlands and BHS and on-site trees and actions to be implemented to achieve a net gain for biodiversity to achieve compliance with the NPPF are feasible and outlined in **Section 5.0**.

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8.0 APPENDIX 1: TABLES

Table 8.1: Photographs



Photo 1: North-eastern and north-western elevations of the house at Whins Lodge and woodland surrounds



Photo 2: North-western and south-western elevations of the house at Whins Lodge and woodland surrounds



Photo 3: Wall along Whalley Old Road



Photo 4: South-eastern (rear) elevation of Whins Lodge



Photo 5: Pond 1 (100% cover of vegetation)



Photo 6: Pond 1 and surrounding lawn habitats



Photo 7: North-western and south-western elevations of the house



Photo 8: South-western elevation and roof of the house



Photo 9: South-eastern elevation and roof of the house



Photo 10: Single storey annex attached to the eastern corner of the house and location of **Roosts 2** and **3**



Photo 11: Sealed soffits at the house



Photo 12: No bats or droppings found at the lead covered vents



Photo 13: Roof void at the main house



Photo 14: Traditional ridge board and bitumen undertile felt at the main house



Photo 15: Roof void in the lower sections of roof at the house



Photo 16: One brown long-eared bat in Roost 1 at the roof void of the house



Photo 17: Scattered bat droppings over roof void of the house

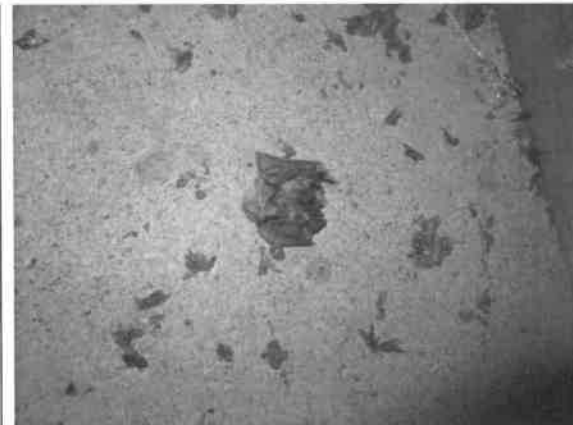


Photo 18: Dead adult brown long-eared bat on floor of roof void



Photo 19: Cellar beneath the house



Photo 20: Roof and south-eastern elevation of outbuilding and location of Roost 4



Photo 21: North-western elevation of the outbuilding



Photo 22: Interior of outbuilding



Photo 23: South-western elevation of garage with Virginia Creeper



Photo 24: Interior of garage



Photo 25: Annex to the north-west of the garage with sealed internal walls



Photo 26: Kennel area



Photo 27: Former kennels



Photo 28: Interior of kennel building



Photo 29: Interior of kennel building with sealed / pointed walls



Photo 30: Summerhouse

Table 8.2: Plant Species List for the Whins Lodge Site and Garden Area

Note: Not all garden / ornamental varieties of plant species have been identified.

Scientific Name	Common Name	DAFOR ¹	Cover
Woody Species			
<i>Acer platanoides</i>	Norway Maple (copper)	R	<1%
<i>Acer pseudoplatanus</i>	Sycamore	F/LA	10%
<i>Aesculus hippocastanum</i>	Horse Chestnut	LA	5%
<i>Araucaria araucana</i>	Monkey Puzzle	R	<1%
<i>Corylus avellana</i>	Hazel	VLF	<1%
<i>Cupressus x leylandii</i>	Leyland Cypress	LF	1%
<i>Hebe</i> sp.	-	VLF	1%
<i>Hypericum calycinum</i>	Rose of Sharon	R	<1%
<i>Ilex aquifolium</i>	Holly	VLA	<1%
<i>Laburnum anagyroides</i>	Laburnum	R	<1%
<i>Larix</i> sp.	Larch species	VLF	<1%
<i>Ligustrum ovalifolium</i>	Garden Privet	LA	1%
<i>Prunus laurocerasus</i>	Cherry Laurel	F	1%
<i>Prunus</i> sp.	Cherry / Fruit	LF	1%
<i>Prunus spinosa</i>	Blackthorn	VLF	1%
<i>Rhododendron ponticum</i>	Rhododendron	LA	2%
<i>Salix caprea</i>	Goat Willow	VLF	1%
<i>Salix</i> sp.	Weeping Willow	R	<1%
<i>Sorbus aucuparia</i>	Rowan	R	<1%
<i>Sorbus</i> sp.	Whitebeam species	R	<1%
<i>Tilia</i> sp.	Lime species	LF	2%
Herb Species			
<i>Achillea millefolium</i>	Garden Lady's Mantle	LF	1%
<i>Arrhenatherum elatius</i>	False Oat-grass	LF	1%
<i>Asplenium ruta-muraria</i>	Wall-rue	R	<1%
<i>Bellis perennis</i>	Daisy	O	<1%
<i>Cerastium fontanum</i>	Common Mouse-ear	O	<1%
<i>Cirsium palustre</i>	Marsh Thistle	O	<1%
<i>Cotoneaster horizontalis</i>	Wall Cotoneaster	VLF	<1%
<i>Festuca rubra</i>	Red Fescue	LF	5%
<i>Geranium robertianum</i>	Herb-Robert	O	<1%
<i>Geranium</i> sp.	Pink Crane's-bill	VLF	<1%
<i>Hedera helix</i>	Ivy	LF	5%
<i>Heracleum sphondylium</i>	Common Hogweed	O	<1%
<i>Holcus lanatus</i>	Yorkshire-fog	LF	5%
<i>Hosta</i> sp.	-	VLF	<1%
<i>Hypericum androsaemum</i>	Tutsan	R	<1%
<i>Impatiens glandulifera</i>	Indian Balsam	VLF	<1%
<i>Juncus effusus</i>	Soft-rush	VLF	<1%
<i>Lamium galeobdolon</i> subsp. <i>argentatum</i>	Variegated Yellow Archangel	VLA	<1%
<i>Lolium perenne</i>	Perennial Rye-grass	A*	20%
<i>Papaver cambricum</i>	Welsh Poppy	O	<1%
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	VLA	<1%
<i>Phleum pratense</i>	Timothy	LF	1%

Scientific Name	Common Name	DAFOR ¹	Cover
<i>Plantago lanceolata</i>	Ribwort Plantain	F	2%
<i>Poa annua</i>	Annual Meadow-grass	LF	5%
<i>Poa trivialis</i>	Rough Meadow-grass	F	5%
<i>Polygonatum × hybridum</i>	Solomon's Seal	VLF	<1%
<i>Potentilla</i> sp.	-	VLF	<1%
<i>Prunella vulgaris</i>	Self-heal	F	1%
<i>Ranunculus repens</i>	Creeping Buttercup	A*	5%
<i>Rubus fruticosus</i> agg.	Bramble	LA	1%
<i>Saxifraga × urbium</i>	London's Pride	VLA	<1%
<i>Taraxacum officinale</i> agg.	Dandelion	O	<1%
<i>Trifolium repens</i>	White Clover	A*	5%
<i>Urtica dioica</i>	Common Nettle	LF	1%
Aquatic / Emergent Species			
<i>Glyceria</i> sp.	Variegated Reed Sweet-grass	VLA	<1%
<i>Iris pseudacorus</i>	Yellow Iris	VLA	1%
<i>Lemna minor</i>	Common Duckweed	VLD	1%
<i>Menyanthes trifoliata</i>	Bogbean	VLA	1%
<i>Nymphaea</i> sp.	Water Lily species	LVA	<1%
¹ Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species			

Table 8.3: Activity Survey 1, Date: 11th August 2020, Sunset time: 20:46 Start time: 20:20

Surveyor Position 1: Victoria Burrows

Time	Species	Number	Notes
21:04	Soprano pipistrelle	1	Emerged from south-west side of ridge on the single storey annex of the house [Roost 2]
21:09	Noctule	1	Pass overhead
21:10	Bat	1	No echolocation
21:12	Common pipistrelle	1	Foraging over rear garden
21:15	Common pipistrelle	1	Emerged from south-east facing gable end of single storey annex of the house [Roost 3]
21:21	Common pipistrelle	1	Pass
22:22	Bat	1	Pass north to south
21:23	Common pipistrelle	2	Foraging over pond plus social calls
21:30	Tawny owl	1	Flew overhead
21:59	Brown long-eared	1	Pass
22:30	End		

The Anabat SD2 recorded:
 2 noctule passes at 20:55 and 21:10;
 42 common pipistrelle between 21:13 and 22:20;
 10 soprano pipistrelle passes between 21:04 and 22:09;
 1 *Myotis* pass at 21:32; and
 2 brown long-eared passes at 22:00.

Surveyor Position 2: Sue Lonsdale

Time	Species	Number	Notes
21:23	Common pipistrelle	1	Pass
22:30	End		

The Anabat Express recorded:
 7 noctule passes between 20:54 and 22:17;
 26 common pipistrelle between 21:13 and 22:19;
 2 soprano pipistrelle passes at 21:54 and 22:00;
 1 *Myotis* passes at 21:59 and 22:01; and
 1 brown long-eared pass at 21:55.

Surveyor Position 3: Luke Atherton

Time	Species	Number	Notes
During survey	-		No emergence activity
22:30	End		

The Anabat Scout recorded:
 1 *Myotis* pass as 21:59;
 5 noctule passes between 21:09 and 22:04;
 128 common pipistrelle between 21:13 and 22:14; and
 4 soprano pipistrelle passes at 21:30 and 22:04.

Surveyor Position 4: Catie Haworth

Time	Species	Number	Notes
21:17	Common pipistrelle	1	Emerged from south-east facing gable end of single storey annex of the house [Roost 3]
21:18	Common pipistrelle	1	Emerged from south-east facing gable end of single storey annex of the house [Roost 3]
21:24	Common pipistrelle	1	Emerged from beneath ridge coping on the south-eastern side of the outbuilding [Roost 4]
22:30	End		No bats entered the barn
The Anabat Scout recorded: 6 noctule passes between 20:54 and 21:18; 29 common pipistrelle passes between 21:12 and 22:10; 9 soprano pipistrelle passes between 21:13 and 22:08; and 1 brown long-eared bat pass at 22:01.			

Table 8.4: Activity Survey 2, Date: 30th August 2020, Sunrise time: 06:14 Start time: 04:30

Surveyor Position 1: Victoria Burrows

Time	Species	Number	Notes
05:11	Brown long-eared	1	Flying over site and then flew to north-west (towards Surveyor Position 2)
05:26	Soprano pipistrelle	1	Foraging around wood
06:29	End		
The Anabat SD2 recorded: 2 soprano pipistrelle passes at 05:13 and 05:28; and 1 brown long-eared bat pass at 05:11.			

Surveyor Position 2: Sue Lonsdale

Time	Species	Number	Notes
06:15	Blackbird	1	Emerged from beneath soffit at western corner of house
06:29	End		

Surveyor Position 3: Luke Atherton

Time	Species	Number	Notes
05:13	Soprano pipistrelle	1	Pass along road
06:29	End		
The Anabat Scout recorded: 1 soprano pipistrelle pass at 05:13.			

Position 4: Danielle Rowlands

Time	Species	Number	Notes
05:13	Brown long-eared	1	1 to 2 passes
06:29	End		
The Anabat SD2 did not record any bat calls.			

9.0 APPENDIX 2: FIGURES

Figure 1: Aerial Photo Showing Site, Surrounding Habitat and Ponds within 500m

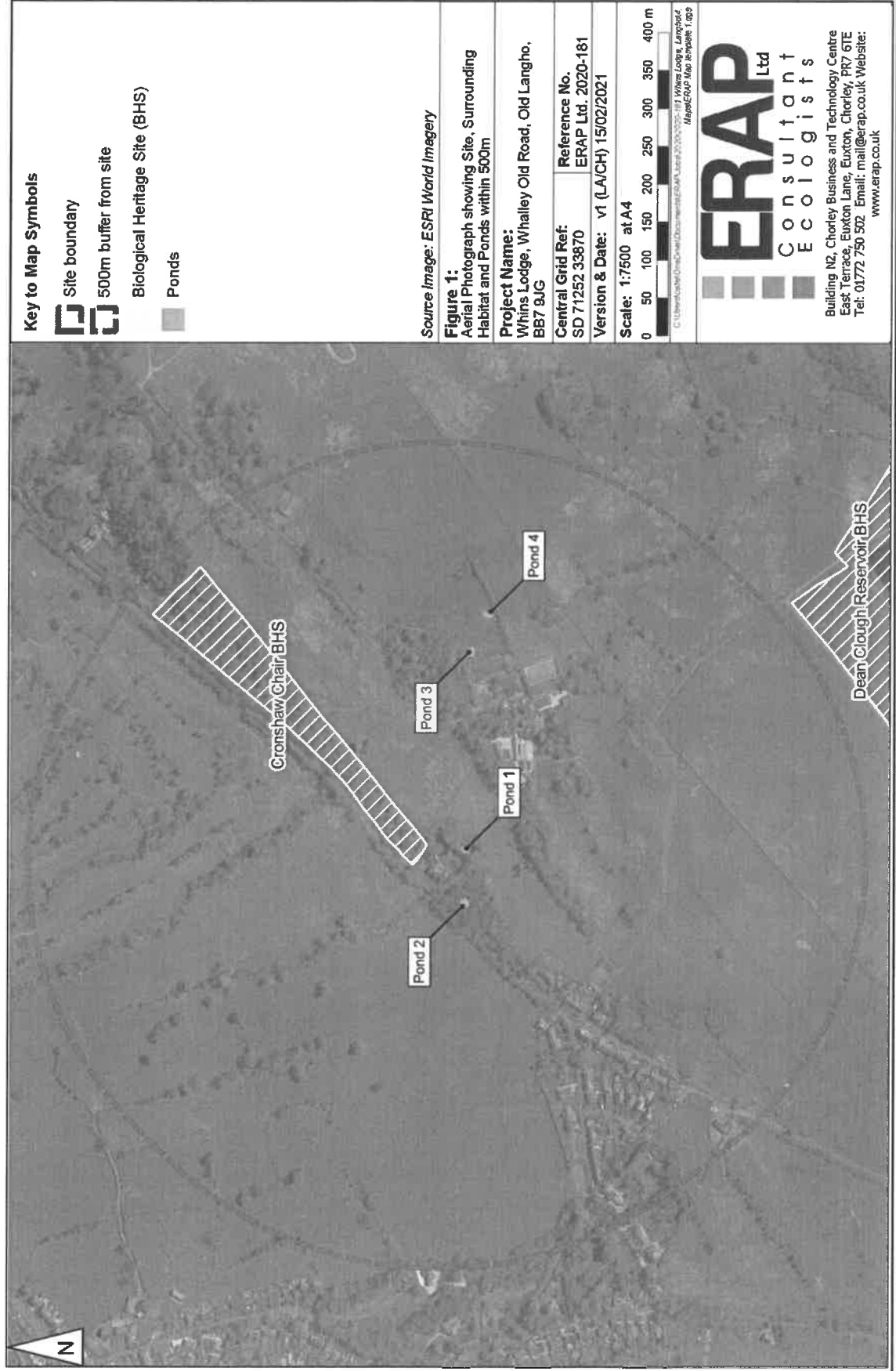


Figure 2: Phase 1 Habitat and Vegetation Map



Figure 3: Map to Show Surveyor Positions and Bat Roost Locations

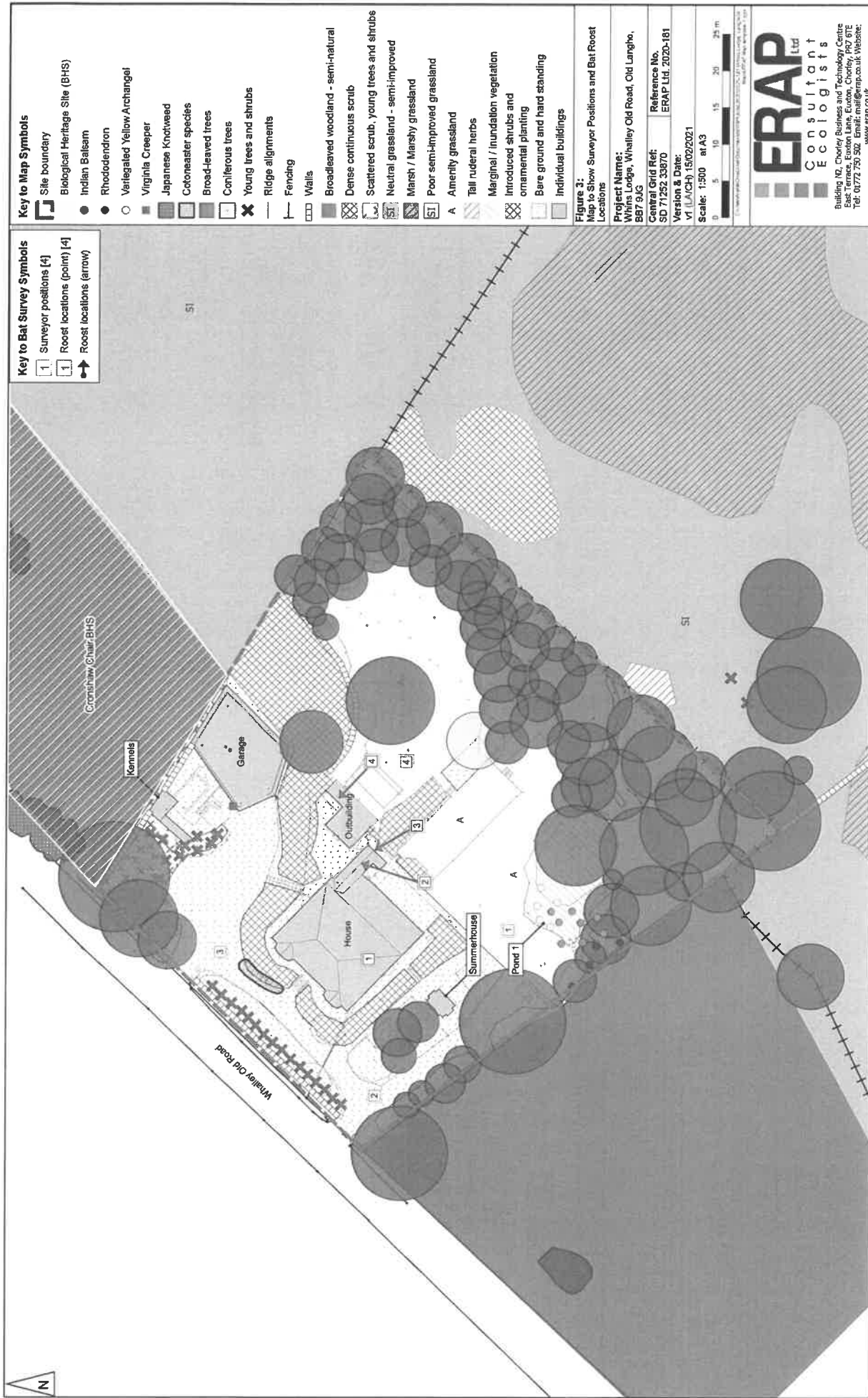


Figure 4: Plan to Show Suggested Mitigation Strategy

