Higher Newfield Edge and Pentangle Barn, Burnley Road, Gisburn, Clitheroe BB7 4JN

ECOLOGICAL SURVEY AND ASSESSMENT (including a Licensed Bat Survey)

November 2021

[ERAP (Consultant Ecologists) Ltd ref: 2020-372]

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Document Control

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Phase 1 Habitat Survey	Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM Principal Ecologist	17th March 2021
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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. ERAP (Consultant Ecologists) Ltd was commissioned to carry out an ecological assessment of the seven buildings and curtilage at Higher Newfield Edge and Pentangle Barn off Burnley Road, Gisburn, BB7 4JN. The survey and assessment are required in connection with a planning application proposing the demolition of buildings 2, 3, 5, 6 and 7 and construction of a new residential property.

ii. This report presents the results of a desktop study and data search, extended Phase 1 Habitat Survey, a daylight licensed bat and barn owl survey and assessment and bat activity surveys carried out in March, August and September 2021. The surveys were carried out by an appropriately experienced, qualified and licensed ecologist with assistants. The scope of survey undertaken is appropriate to identify potential ecological constraints, identify the scope of any further survey, the feasibility of any mitigation required and opportunities for biodiversity associated with the proposals.

Results of Survey and Evaluation

iii. The approximately 0.3 hectare site comprises a complex of two attached residential properties bordered by managed gardens, ancillary buildings and hard-standing driveway. The site is located in a rural area of agriculturally managed grasslands bordered by dry stone walls on the edge of the moorland to the east of Weets Hill. The site boundaries are typically demarcated by dry stone walls and timber fences. North of the property and within the area to be affected by the new access driveway is sheep grazed poor semi-improved grassland.

iv. The proposals will have no adverse direct or indirect effect on statutory or non-statutory designated sites for nature conservation.

v. No Priority Habitats, semi-natural habitats or rare plant species are present. Two invasive plant species namely Virginia Creeper and Montbretia (and an unidentified Cotoneaster species) listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) were detected. **Section 5.2** of this report provides relevant guidance in relation to the avoidance of the risk of spread of these species in the wild.

vi. Based on the presence of features suitable for use by roosting bats and the location of the buildings, Buildings 1 and 2 were assessed to be of moderate suitability for use by roosting bats and Building 7 was assessed to be of low suitability. The relevant scope of bat activity to comply with the guidance at Table 7.3 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)* (Collins, J. (ed), 2016) was carried out.

vii. No evidence of the current or previous use of the buildings by roosting bats was detected and no emergence or re-entry activity was detected during the bat activity surveys; no further surveys in relation to bats are required to inform the proposals and planning application.

viii. No evidence of use of the buildings by nesting or roosting barn owl was detected. The buildings, dry stone walls and vegetation within the garden habitats are suitable for use by nesting birds. Guidance in relation to the avoidance of adverse effects and protection of nesting birds is provided at **Section 5.2**.

ix. Appropriate survey effort and assessment has been carried out to discount the presence of other relevant protected species, namely badger, great crested newt and reptile species. No further surveys for other species are necessary to inform the planning application.

Recommendations and Conclusion

x. The proposals at Higher Newfield Edge can be achieved with no adverse effect on designated sites for nature conservation, Priority Habitat, irreplaceable habitats and rare plant species. The recommendations in **Section 5.0** outline the mandatory measures and additional actions to be applied to avoid adverse effects on protected species / wildlife and to ensure compliance with wildlife legislation, the National Planning Policy Framework and best practice.

xi. The report describes the appropriate and proportionate measures and recommendations that aim to enhance the value of the site for wildlife such as roosting bats, nesting birds and biodiversity to achieve measurable gains for biodiversity and compliance with the NPPF, local planning policy and best practice.

1.0 INTRODUCTION

1.1 Background and Rationale

1.1.1 ERAP (Consultant Ecologists) Ltd was commissioned to carry out a licensed bat survey and ecological assessment of the Higher Newfield Edge property and the adjacent Pentangle Barn, off Burnley Road, Gisburn, BB7 4JN in March 2021. The Ordnance Survey (OS) grid reference at the centre of the site is SD 84735 45290. An aerial image of the site and its surrounding habitats is appended at **Figure 1** (source image: ESRI World Imagery).

1.1.2 The assessment was requested in connection with a planning application proposing the demolition of the Higher Newfield Edge property (Building 2), the triple garage (Building 3), the hexagonal garden room (Building 5), the stable (Building 6) and the outbuilding (Building 7) and the construction of a new house and a new accesses to the retained Pentangle Barn (Building 1) and Newfield Edge properties.

1.2 Scope of Works

1.2.1 The scope of ecological works undertaken in March, August and September 2021 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 and 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);

c. A licensed daylight bat survey of the buildings and any trees and an assessment of their suitability to support roosting bat species at any time of year;

d. Survey and assessment of the habitats for use by nesting birds including species listed on Schedule 1 of the *Wildlife and Countryside Act 1981* (as amended) such as barn owl (*Tyto alba*) and Priority Species;

e. Survey and assessment of all habitats for relevant statutorily protected species[1] and other wildlife including badger (*Meles meles*), barn owl (*Tyto alba*), bird species and reptiles;

f. The identification of any further surveys or precautionary actions that may be required prior to the commencement of any development activities; and

g. 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.

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

b. MARIO Maps;

c. Lancashire Environment Record Network (LERN), the local records centre; and

[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. In this instance (for example) there are no significant water courses within the site or adjacent to the site; there has been no requirement to consider otter (*Lutra lutra*) or water vole (*Arvicola amphibius*) as part of this assessment.

d. Lancashire Biodiversity Action Plan (BAP).

2.2 Vegetation and Habitats

2.2.1 An Extended Phase 1 Habitat Survey of the site was carried out by Victoria Burrows on 17th March 2021. The weather was dry and overcast with a light breeze (Beaufort scale 2) and a temperature of 3ºC. The Phase 1 Habitat Survey was updated during the site visits carried out in August and September (refer to **Table 2.3**).

2.2.2 A habitat and vegetation map was produced 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 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 Daylight Licensed Bat Survey and Assessment

Survey Area

2.3.1 The daylight licensed bat survey covered all buildings (Buildings 1 to 7) and trees within the red-line boundary, refer to **Figures 1** and **2.**

Surveyor and Survey Date

2.3.2 The daylight licensed bat survey and assessment was carried out by Victoria Burrows (Natural England Class Survey Licence WML CL18 (Bat Survey Level 2), Registration Number 2015-10390-CLS-CLS) on 17th March 2021; the weather conditions are as reported in **Section 2.2**. Victoria's qualifications and experience meet the criteria as defined in the *Technical Guidance Series Competencies for Species Survey: Bats* (CIEEM, 2013).

Survey Guidelines

2.3.3 The survey was 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).

Habitat Assessment for Commuting / Foraging Bats

2.3.4 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: Buildings

2.3.5 An inspection and assessment of the external surfaces, walls and roofs of the buildings was carried out to find potential bat roosting habitat or accesses into crevices 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 also carried out.

2.3.6 The internal survey (where required) involved an examination of the accessible areas to find roosting bats or evidence of previous use of the buildings by bats such as droppings and prey remains.

2.3.7 The suitability of the buildings for use 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.

Daylight Survey: Trees and Shrubs

2.3.8 Trees and shrubs 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 provided 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 Borescope CA-300

Presence / Absence Surveys: Bat Activity Surveys

2.3.12 Following the daylight survey and assessment two bat activity surveys (one dusk emergence and one dawn re-entry) were carried out at Buildings 1, 2 and 7 in August and September 2021. Prior to the dusk emergence survey and following the dawn re-entry survey and updated search for bat droppings was carried out around the external perimeter of all buildings.

2.3.13 Three surveyors, experienced in conducting bat surveys, were positioned at suitable locations to maximise the coverage of the relevant buildings to determine any entry into or exit from the buildings to indicate the presence of a roost. 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 units[2] were used to record and analyse echolocation calls after the survey using AnalookW 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 at least 1.5 hours before sunrise and ended 15 minutes after sunrise, provided all bat activity had ceased by this point.

2.3.15 One SANNCE CCTV system (comprising a 1080N Digital Video Recorder with screen and two 720P high definition cameras (supplemented with additional infra-red lighting)) were used at the positions shown on **Figure 2** as an additional survey method.

2.3.16 Surveyor positions are annotated on **Figure 2**. 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 below.

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

Date	**12th August 2021**	**3rd September 2021**
Survey type	Dusk emergence	Dawn re-entry
Sunset /rise	20:46	06:18
Start time	20:25	04:30
End time	22:20	06:33
Wind	Beaufort scale 2 (light breeze)	Beaufort scale 1 (light air)
Precipitation	Dry	Dry
Air temperatures	17ºC at 21:00 falling to 16ºC at 22:30	13ºC throughout
Survey Position	**Surveyor and Detector**	**Surveyor and Detector**
1	Leah Hart Batbox III and Anabat Express	Leah Hart Batbox III and Anabat Express
2	Victoria Burrows Batbox Duet and Anabat Express	Victoria Burrows Batbox Duet and Anabat Express
3	Chris Swindells Batbox III and Anabat Express	Chris Swindells Batbox III and Anabat Express

2.4 Other Relevant Protected Species and Animal Life

Badger

2.4.1 The survey area for badger covered the site (as annotated on **Figure 2**) and extended to accessible land within a radius of 50 metres from the site boundary.

[2] i.e. Anabat SD2, Anabat Express, Anabat Walkabout, Peersonic RPA3 and Echometer Touch Pro 2

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:

a. Sett entrances, e.g. entrances that are normally 25 to 35cm in diameter and shaped like a 'D' on its side;
b. Large spoil heaps outside sett entrances;
c. Bedding outside sett entrances;
d. Badger footprints;
e. Badger paths;
f. Latrines;
g. Badger hairs on fences or bushes;
h. Scratching posts; and
i. 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 The buildings were searched for evidence of use by barn owl in accordance with guidelines presented in *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). Buildings were searched for pellets, faecal splashes and feathers which may indicate use by roosting or nesting barn owl.

2.4.6 Bird species observed and heard during the survey were recorded.

2.4.7 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.

Great Crested Newt and Amphibians

Desktop Search for Ponds

2.4.8 In accordance with current Natural England guidance (Natural England, 2020) all ponds within an unobstructed 500 metres of a site should be considered for their suitability to support breeding great crested newts. The potential of the proposed development to impact upon any great crested newt population(s) whose breeding ponds are within 500 metres must be considered.

2.4.9 There are no ponds within the site. The search of habitats in the wider area up to a distance of 500 metres from the site boundary revealed the possible presence of one pond approximately 259 metres to the south of the site at OS grid reference SD 8471 4496.

2.4.10 Examination of this area on 17th March 2021 confirmed the presence of marshy grassland / rush pasture grassland with ephemeral pools. Based on the absence of a significant area of open water, the distance to the site (over 250 metres), the relatively small scale nature of the proposals and the presence of a wall between the site and the marshy grassland to the south of the site (towards the pond) the likelihood of adverse effects on great crested newt and other amphibians is reasonably discounted. No further survey in relation to great crested newt (and other amphibians) is considered to be required to inform the planning application, to comply with relevant survey guidelines and the requirements of with *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and Their Impact on the Planning System* (Ministry of Housing, Communities & Local Government, 2005).

Reptile Species

2.4.11 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 2.4: 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 All areas of the site were easily accessed and surveyed. The Phase 1 Habitat Survey, licensed daylight bat survey (as updated in August) and dusk emergence survey were carried out at an optimum time of year. The dawn re-entry survey was carried out within an appropriate survey period, as advised by the survey guidelines. No survey limitations were experienced.

2.5.2 All measurements within this report are approximate only, and have been either measured (using QField) or 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 has 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, 2021) 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 habitats and / or species listed by the Lancashire BAP Provisional Long List has been taken into account 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 has no statutory designation for nature conservation. The site lies 5.6 kilometres to the west of the nearest statutory designated site (Clitheroe Knoll Reefs Site of Special Scientific Interest (SSSI)). The site does not lie within any Sites of Special Scientific Interest Impact Risk Zones.

Non-statutory Designated Sites for Nature Conservation

3.1.2 The site has no non-statutory designation for nature conservation. Three Biological Heritage Sites (BHS), non-statutory sites for nature conservation, lie within 2 kilometres of the site and are summarised below:

Table 3.1: Non-statutory Sites for Nature Conservation within 2 kilometres of the Site

Biological Heritage Site (BHS)	Distance and Direction from site (OS Central Grid Reference)	Reasons for Designation
Coal Pit Lane Roadside Verges	115 metres to the east (SD836476)	Comprises wide verges and hedgerows and trees along both sides of Coal Pit Lane for approx. 3.5 kilometres. The verges support a wide variety of habitats including species-rich grassland, tall-herb vegetation, damp ditches, wet flushes, scattered scrub and woodland. Two species that are listed in the *Provisional Lancashire Red Data List of Vascular Plants* occur at the site, namely Green Figwort (*Scrophularia umbrosa*) and Pepper-saxifrage (*Silaum silaus*).
White Moor and Weets Hill	1.1 kilometres to the south-east (SD866435)	An extensive area of Heather-dominated moorland that supports a variety of heathland, bog and acid grassland communities. Part of the site is of ornithological value: large numbers of curlew (*Numenius arquata*) gather on the southern slopes of White Moor in March and April, prior to dispersing to their breeding grounds.
Burn Moor	1.6 kilometres to the south (SD849432)	An area of moorland supporting modified blanket bog and wet heath communities with associated flush systems. The moor is of ornithological importance. Burn Moor is notable for breeding red grouse (*Lagopus lagopus*). Curlew breed on the site and large post-breeding flocks congregate on the moor. Short-eared owl (*Asio flammeus*) have bred in the past.

3.1.3 The presence of the BHS within 2 kilometres of the site is considered further at **Section 4.2** below.

Priority Habitats Inventory and Soilscape Information

3.1.4 The Priority Habitats Inventory[3] was checked via MAGiC map. The site supports no Priority Habitats as indicated via MAGiC map. The southern area of the site lies within the National Habitat Network (All Habitats Combined) Network Expansion Zone.

3.1.5 In accordance with *Soilscape (England)* as presented on MAGiC map (National Soil Resources Institute, 2005), the site lies across two Soilscape classifications. The northern area of the site supports '*slowly permeable seasonally wet acid loamy and clayey soils'*, and the characteristic semi-natural habitats associated with the soils comprise '*seasonally wet pastures and woodlands mainly but not exclusively, on the upland fringe*'. The southern area of the site supports '*slowly permeable very wet acid upland soils with a peaty surface'*, and the characteristic semi-natural habitats associated with the soils comprise '*grass moor and some heather with flush and bog communities*'.

[3] A spatial dataset that describes the geographic extent and location of Natural Environment and Rural Communities Act (2006) Section 41 habitats of principal importance.

Protected and Notable Species

3.1.6 LERN hold no records of protected and notable species for the site.

3.1.7 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
Amphibians	Great crested newt (*Triturus cristatus*): EPS, WCAs5, PS & LBAP. 1 record, dated 1968, position recorded only to 10,000m^2 accuracy.
	Common frog (*Rana temporaria*): LBAP. 2 records, dated 1970 and 1974, the closest of which is 350m from the site.
	Palmate newt (*Lissotriton helveticus*): 3 records, dated between 1833 and 1968, the closest of which is 350m from the site.
Birds	Kingfisher (*Alcedo atthis*): WCAs1. 1 record, dated 2011, 350m from the site.
	PS & LBAP Cuckoo (*Cuculus canorus*), curlew (*Numenius arquata*), house sparrow (*Passer domesticus*), lapwing (*Vanellus vanellus*), reed bunting (*Emberiza schoeniclus*), skylark (*Alauda arvensis*), spotted flycatcher (*Muscicapa striata*), wood warbler (*Phylloscopus sibilatrix*), yellowhammer (*Emberiza citrinella*), bullfinch (*Pyrrhula pyrrhula*), dunnock (*Prunella modularis*), song thrush (*Turdus philomelos*) and starling (*Sturnus vulgaris*).
	PS only Lesser redpoll (*Acanthis cabaret*) and marsh tit (*Poecile palustris*).
	LBAP only Common sandpiper (*Actitis hypoleucos*), grey heron (*Ardea cinerea*), kestrel (*Falco tinnunculus*), long-eared owl (*Asio otus*), meadow pipit (*Anthus pratensis*), redshank (*Tringa totanus*), snipe (*Gallinago gallinago*), swift (*Apus apus*), teal (*Anas crecca*), whinchat (*Saxicola rubetra*) and willow warbler (*Phylloscopus trochilus*).
Bony fishes	Atlantic salmon (*Salmo salar*): PS & LBAP. 4 records, both dated 1987, the closest of which is 660m from the site.
	Brown/sea trout (*Salmo trutta*): PS & LBAP. 2 records, both dated 1987, the closest of which is 1380m from the site.
Clubmosses	Fir clubmoss (*Huperzia selago*): LBAP. 1 record, dated 1850, 350m from the site.
Flowering plants	**PS & LBAP** Field Gentian (*Gentianella campestris*) and Lesser Butterfly-orchid (*Platanthera bifolia*).
	LBAP only Cloudberry (*Rubus chamaemorus*), Common Meadow-rue (*Thalictrum flavum*), Cowberry (*Vaccinium vitis-idaea*), Fragrant Orchid (*Gymnadenia conopsea*), Greater Butterfly-orchid (*Platanthera chlorantha*), Green Hellebore (*Helleborus viridis*), Herb-Paris (*Paris quadrifolia*), Pepper-saxifrage (*Silaum silaus*), Petty Whin (*Genista anglica*), Upright Brome (*Bromopsis erecta*) and Wood Crane's-bill (*Geranium sylvaticum*).
Insects (butterflies)	Small heath (*Coenonympha pamphilus*): PS & LBAP.
	Ringlet (*Aphantopus hyperantus*): LBAP.
Insects (moths)	**PS & LBAP** Double dart (*Graphiphora augur*), galium carpet (*Epirrhoe galiata*) and v-moth (*Macaria wauaria*).
	PS only Autumnal rustic (*Eugnorisma glareosa*), brindled ochre (*Dasypolia templi*), dusky brocade (*Apamea remissa*), ear moth (*Amphipoea oculea*), ghost moth (*Hepialus humuli*), green-brindled crescent (*Allophyes oxyacanthae*), grey mountain carpet (*Entephria caesiata*), Haworth's minor (*Celaena haworthii*), heath rustic (*Xestia agathina*), mouse moth (*Amphipyra tragopoginis*), rosy rustic (*Hydraecia micacea*), shaded broad-bar (*Scotopteryx chenopodiata*), small square-spot (*Diarsia rubi*) and white ermine (*Spilosoma lubricipeda*).

Taxon Group	Species Name and Designations[1] and Notes
	LBAP only Chimney sweeper (*Odezia atrata*), crescent groundling (*Teleiodes luculella*), dark marbled carpet (*Dysstroma citrata*), gold spangle (*Autographa bractea*), golden-rod brindle (*Xylena solidaginis*), puss moth (*Cerura vinula*) and six-spot groundling (*Prolita sexpunctella*).
Reptiles	Common lizard (*Zootoca vivipara*): WCAs5, PS & LBAP. 1 record, dated 1968, 350m from the site.
	Slow-worm (*Anguis fragilis*): WCAs5, PS & LBAP. 1 record, dated 1968, 350m from the site.
Terrestrial mammals	European otter (*Lutra lutra*): EPS, WCAs5, PS & LBAP. 2 records, dated 1969 and 2018, the closest of which is 350m from the site.
	Eurasian red squirrel (*Sciurus vulgaris*): WCAs5, PS & LBAP. 2 records, dated 1945 and 1950, the closest of which is 350m from the site.
	Brown hare (*Lepus europaeus*): PS & LBAP. 7 records, dated between 2011 and 2012, the closest of which is 1200m from the site.
	European hedgehog (*Erinaceus europaeus*): PS & LBAP. 2 records, dated 1968 and 1972, the closest of which is 350m from the site.
[1]Key to Designation Codes: EPS = European Protected Species under the *Conservation of Habitats and Species Regulations 2017*. WCAs1 = Species receives full protection under Schedule 1 of the *Wildlife and Countryside Act 1981* (as amended). WCAs5 = Species receives full protection under Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended). PS = Priority Species listed under Section 41 of the NERC Act 2006. LBAP = Species listed on the Lancashire Biodiversity Action Plan Provisional Long List.	

3.1.8 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 0.3 hectare site comprises a complex of two attached residential properties (a third property known as Newfield Edge at the eastern end of the row lies outside the site boundary) bordered by managed gardens, ancillary buildings and hard-standing driveway. The site is located in a rural area of agriculturally managed grasslands bordered by dry stone walls on the edge of the moorland to the east of Weets Hill. The site boundaries are typically demarcated by dry stone walls and timber fences.

3.2.2 North of the property and within the area to be affected by the new access driveway is sheep grazed poor semi-improved grassland. Similar grassland lies to the west. Immediately south of the site beyond the stone retaining wall and on higher ground is an area of dense rushes / marshy grassland.

3.2.3 A Phase 1 Habitat Survey map is appended at **Figure 2**. Photographs are appended at **Table 8.1**.

Buildings

3.2.4 Buildings are described in **Section 3.3**.

Garden Habitats Including Amenity Grassland

3.2.5 Refer to **Photo 1** to **4**. The land around the curtilage of the buildings comprises of asphalt covered hard-standing, gravelled areas, short mown amenity grassland and herbaceous borders with ornamental plant species. The boundary to the property is demarcated by stone walls.

3.2.6 To the south (rear) of Pentangle Barn (Building 1) is a steeply sloping retained bank with a rockery and stone steps. This area supports a semi-mature Beech (*Fagus sylvatica*) tree with an understorey colonised by abundant Snowdrop (*Galanthus* sp.), Ivy (*Hedera helix*), Bluebell (*Hyacinthoides non-scripta*) and London Pride (*Saxifraga* × *urbium*) with occasional Bramble (*Rubus fruticosus* agg.), Common Nettle (*Urtica dioica*), Foxglove (*Digitalis purpurea*), Herb-Robert (*Geranium robertianum*) and very locally abundant Lesser Celandine (*Ficaria verna*).

Poor Semi-improved Grassland

3.2.7 As annotated on **Figure 2** the proposed new access driveway to the retained properties (off-site Higher Newfield Edge (off-site)) and Pentangle Barn will traverse the sheep grazed poor-semi-improved grassland to the north of the buildings.

3.2.8 The grassland is characterised by abundant Perennial Rye-grass (*Lolium perenne*) with frequent Crested Dog's-tail (*Cynosurus cristatus*), Rough Meadow-grass (*Poa trivialis*), Yorkshire-fog (*Holcus lanatus*) and occasional forbs of Creeping Buttercup (*Ranunculus repens*) and Creeping Thistle (*Cirsium arvense*). The grassland has affinities with the MG6 *Lolium perenne – Cynosurus cristatus* grassland of the NVC.

Invasive Plant Species

3.2.9 No Japanese Knotweed is present at the site.

3.2.10 As illustrated on **Figure 2,** two stands of a Cotoneaster species[4] are present at the site, one area of Montbretia (*Crocosmia x crocosmiiflora*) is present to the rear of Pentangle Barn and Virginia Creeper (*Parthenocissus quinquefolia)* is present on the north elevation of Building 2.

3.2.11 These species are listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended); it is an offence to spread or cause their spread in the wild. This is considered further at **Section 5.2** below.

3.3 Licensed Bat Survey and Assessment

Habitat Assessment for Commuting / Foraging Bats

3.3.1 The vegetation cover within the site is limited in extent and no trees and shrubs are present within the site boundary; the habitats at the site are assessed to be of low suitability for use by foraging bats.

3.3.2 Habitats surrounding the site comprise sheep grazed improved grasslands with dry stone walls, wooded copses and scattered trees. In the wider area, where the altitude increases, the habitats comprise marshy grasslands and rush pastures. This landscape and the associated habitats are assessed to be of low to moderate suitability for the attraction of foraging bats in contrast to the more lowland wooded stream valleys towards Newby and Rimington what are likely to provide more favourable opportunities for use by a range of bat species.

Daylight Survey and Assessment: Buildings

Building 1: Pentangle Barn

3.3.3 Refer to **Photos 5** to **11**. Pentangle Barn is sandwiched between the Higher Newfield Edge property (Building 2) and the remainder of the Newfield Edge property. The building has two storeys with stone elevation walls and a pitched roof covered with slates at the north facing pitch and concrete tiles on the south-facing pitch. As single storey annex with a monopitch concrete tile covered roof and render covered walls is attached to the southern (rear) elevation and a single storey stone porch with a pitched slate covered roof is present at the northern elevation.

3.3.4 Opportunities for bat access and potential roost features were identified beneath the roof slates and ridge tiles on the main house and the porch and beneath the lead flashing at the base of the chimneys.

3.3.5 As illustrated on **Photo 8** on the north facing roof pitch the slates meet the stone roof tiles on the roof of the off-site property; this uneven edge provides gaps and opportunities for bat access.

3.3.6 No bats or bat droppings were found around the external perimeter of the building.

[4] Five species of *Cotoneaster* are listed as invasive plant on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) the species of *Cotoneaster* present was not identified to species level and, as such, the guidance provided in **Section 5.2** is a precautionary measure.

3.3.7 No roof void is present at the property; no internal survey was carried out.

3.3.8 Building 1 is assessed to be of moderate suitability for use by roosting bats.

Building 2: Higher Newfield Edge House

3.3.9 Refer to **Photos 12** to **17**. The Higher Newfield Edge house (Building 2) is a two storey stone property with a pitched roof covered with slates at the north facing pitch and concrete tiles on the south-facing pitch. A single storey annex is present at the southern elevation and a single storey extension with a shallow dry-ridge system roof tile covered roof is present at the western elevation.

3.3.10 No bats or bat droppings were found around the external perimeter of the building. No roof void is present at the property; no internal survey was carried out.

3.3.11 Features such as the timber soffits (with spotlights) on the two storey section of the building and the door and window frames are well-sealed; no opportunities for bat access were found. Opportunities for bat access and features with suitability for use by roosting bats comprised:

a. Beneath the roof slates / tiles and ridge copings;

b. Refer to **Photo 16**. A small (5cm diameter) hole adjacent to a rotten timber lintel on the east facing elevation. Further inspection of this feature with an endoscope (from ladders) confirmed that the feature is shallow (extends less than 8cm into the stone wall). No bats or bat droppings were found inside or beneath this hole; and

c. Refer to **Photo 17**. A gap behind the timber fascia at the east facing elevation of the single storey annex; closer inspections did not detect any bats or droppings.

3.3.12 Owing to the presence of these potential roost features Building 2 is assessed to be of moderate suitability for use by roosting bats.

Building 3: Triple Garage

3.3.13 Refer to **Photos 18** to **20**. To the west of the house (Building 2) is a stone garage with a pitched slate covered roof and skylights. The building appears to be of a recent construction. Examination of the exterior confirmed that the stone walls are well-pointed, the barge boards are sealed and the roof slates and ridge copings are intact and tightly fitted. No opportunities for bat access or potential roost features were found. No roof void is present and the upper floor of the garage is converted to a flat / office.

3.3.14 Based on the absence of any potential roost features or accesses suitable for use by roosting bats Building 3 is assessed to be of negligible suitability for use by roosting bats.

Building 4: Garden Room

3.3.15 Refer to **Photo 21**. Building 4 is a timber and glass garden room (to be retained). No opportunities for bat access or potential roost features were found; Building 4 is assessed to be of negligible suitability for use by roosting bats.

Building 5: Hexagonal Timber Garden Room

3.3.16 Refer to **Photos 22** and **23**. Located to the south-west of the stable (Building 6) is a hexagonal shaped timber garden room with a pitched slate covered roof. The tightly fitting slates are lined with timber planks beneath.

3.3.17 No opportunities for bat access or potential roost features were found; Building 5 is assessed to be of negligible suitability for use by roosting bats.

Building 6: Stable

3.3.18 Refer to **Photos 24** to **26**. Building 6 is a single storey timber framed stable with single ply timber plank elevation walls and a pitched felt covered roof. The horizontal planks at the walls have no overlapping

sections that would provide opportunities for roosting bats. Gaps in the side wall would permit bat access to the interior of the stable; no bats or bat droppings to indicate entry into the stable was detected.

3.3.19 Based on the absence of potential roost features Building 6 is assessed to be of negligible suitability for use by roosting bats.

Building 7: Outbuilding

3.3.20 Refer to **Photos 27** to **30**. Positioned to the south of the main house is a single storey stone outbuilding with a monopitch tile covered roof. Examination of the exterior confirmed that the elevation walls are well pointed or covered with concrete render. Gaps suitable for bat access were found behind a timber barge board at the northern elevation; closer examination did not detect any bats or droppings. No other opportunities for bat access were found around the exterior.

3.3.21 Examination of the interior confirmed that the building is damp. The underside of the roof tiles is lined with undertile felt. No bats or bat droppings were found inside the outbuilding.

3.3.22 Building 7 is assessed to be of low suitability for use by roosting bats.

Daylight Survey and Assessment: Trees and Shrubs

3.3.23 No trees or shrubs within the site boundary support potential roost features or are assessed to have suitability for use by roosting bats.

Roost Presence / Absence and Bat Activity Surveys

Dusk Emergence Survey 12th August 2021

3.3.24 A search of the external perimeter of the buildings prior to the dusk emergence survey did not detect any bat droppings.

3.3.25 As detailed at **Table 8.2**, appended, despite optimum weather conditions the bat activity detected at the site was limited to one distant pass of a common pipistrelle at 21:28. No emergence or re-entry activity was recorded by any of the surveyors or cameras.

3.3.26 During the dusk emergence survey the downlights in the soffits at the western elevation of Building 2 were illuminated.

Dawn Re-entry Survey: 3rd September 2021

3.3.27 The survey data recorded during the dawn re-entry survey are presented at **Table 8.3**. No bat re-entry or emergence was detected.

3.3.28 Bat activity was limited to passes of common pipistrelle between 04:37 and 04:42, at 05:14 and at 05:28 (50 minutes before sunrise).

3.3.29 No bat droppings were found around the external perimeter of the buildings.

3.4 Animal Life

Badger

3.4.1 No badger setts or evidence of badger was detected at the site or survey area. The presence of badger is reasonably discounted.

Bird Species

3.4.2 No evidence of the current or previous use of the buildings by nesting or roosting barn owl was detected.

3.4.3 No evidence of the current use or previous of the buildings by nesting birds was detected.

3.4.4 Other opportunities for nesting birds within the site are limited, although the dry stone walls and the trees and shrubs bordering the site boundary may be used by nesting passerine birds.

Reptiles

3.4.5 It is recognised that the data search reported on records of common lizard and slow-worm within 350 metres of the site boundary. These records are however old (dated 1968) and no more recent records are reported. The heavily disturbed habitats and the limited vegetation cover within the site provide no opportunities for sheltering reptiles and, as such, the presence of reptile species at the site is reasonably discounted.

4.0 EVALUATION AND ASSESSMENT

4.1 Introduction and Description of Proposals

4.1.1 As illustrated on *Higher Newfield Edge Stables, Proposed Site Plan – Roof Level Drawing 116.20* (Zara Moon Architects, 2021), hereafter the 'proposals plan', the proposals comprise:

a. Demolition of the Higher Newfield Edge property (Building 2), the triple garage (Building 3), the hexagonal garden room (Building 5), the stable (Building 6) and the outbuilding (Building 7);

b. Construction of a new house; and

c. Construction of new accesses to the retained Pentangle Barn and the Newfield Edge properties through the field of poor semi-improved grassland to the north of the properties.

4.1.2 **Section 4.2** provides an assessment of any impacts of the proposed development on the designated sites for nature conservation present in the wider area. The ecological value of habitats within the site is evaluated at **Section 4.3**, and protected and notable species are considered at **Section 4.4**.

4.2 Designated Sites for Nature Conservation

4.2.1 The habitats at the site are not complementary to any of the features of interest at the statutory and non-statutory designated sites for nature conservation present in the wider area.

4.2.2 It is considered that the site is sufficiently small and distant from all designated sites for nature conservation that the proposed development will have no direct or indirect impact on the designated sites in the local area and their features of special interest.

4.3 Vegetation and Habitats

4.3.1 The site (namely the buildings and garden curtilage and the poor semi-improved grassland) contains common and widespread plant species. The plant species in the poor semi-improved grassland to be removed to construct the accesses are typical of agriculturally managed habitats and conditions in the wider area. No rare plant species were detected. None of the habitats present in the site or immediately adjacent to the site / within a potential zone of influence are representative of semi-natural habitat or are Priority Habitat.

4.3.2 Two invasive plant species (Virginia Creeper and Montbretia) and a possible Cotoneaster species listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) were detected. It is an offence under this legislation to spread or to cause the spread of these species in the wild; further guidance to avoid this risk is provided at **Section 5.2**.

4.4 Protected Species and Other Wildlife

Bats

4.4.1 No evidence of current or previous use of the buildings to be affected by the proposals by roosting bats was detected during the daylight survey, the dusk emergence survey and the dawn re-entry survey carried out in March, August and September 2021 respectively.

4.4.2 In accordance with the results of the surveys and assessment it is considered that appropriate and proportionate survey effort has been carried out to determine the likely bat roost status at the site and to demonstrate compliance with the survey guidelines. No further surveys are necessary to inform the planning application.

4.4.3 It is recognised that limited bat activity was detected at the site and surrounds and this is attributed to the illumination at the site (particularly the downlights at the soffits on the western elevation of Building 2 which were are constantly illuminated at night), and the relatively exposed conditions at the site owing to its position near to the edge of the moorland line and the absence of landscape features such as tree lines / woodlands that would provide connectivity and shelter for insects and foraging bats.

Bat Survey Validity

4.4.4 The results of the daylight bat survey and assessment and bat activity surveys carried out in August and September 2021 remain valid until the 2022 bat activity survey season. If works have not commenced before July 2022 an updated bat survey and assessment of the site is advised to ensure that the works are informed by the current bat roost status at the site.

Other Animal Life

4.4.5 The Beech tree, the conifer hedgerow and the dry stone walls bordering the garden may provide opportunities for use by nesting birds. Recommendations and actions to be applied to avoid adverse effects on nesting birds and to secure the protection of breeding birds during the demolition, site preparation and construction period are described at **Section 5.2**.

4.4.6 Appropriate and proportionate survey effort and / or assessment, in accordance with standard survey guidelines has been applied to discount adverse effects on other relevant protected species. No further surveys for other protected species are necessary to support a planning application.

5.0 RECOMMENDATIONS AND ECOLOGICAL ENHANCEMENT

5.1 Introduction

5.1.1 The recommendations described below are relevant to the ecological baseline conditions including the habitats in the wider area, the proposals and take into consideration the end use of the site as a residential development.

5.1.2 The mandatory actions and recommendations are provided to ensure that the proposals are implemented in accordance with relevant wildlife legislation, Natural England guidance, the principles of the National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2021), local planning policy and best practice.

5.1.3 In accordance with Chapter 15, paragraph 180(d) of the NPPF, when determining planning applications, local planning authorities should encourage opportunities to incorporate biodiversity improvements in and around developments, especially where this can secure measurable net gains for biodiversity. Therefore, where possible, opportunities to secure ecological enhancement and seek biodiversity gain through appropriate landscape planting and habitat creation as part of the proposals have been identified and described below.

5.2 Mandatory Actions and Best Practice During Demolition, Site Preparation and Construction

Protection of Dry Stone Walls, Trees and Bluebells

5.2.1 During the demolition and construction phase, it is advised that measures are implemented to achieve the protection of the dry stone walls at the site boundaries, any overhanging branches of the semi-mature Beech tree and the Bluebell (a plant species listed on Schedule 8 of the *Wildlife and Countryside Act 1981* (as amended) to the south of Pentangle Barn (Building 1).

5.2.2 Fencing to protect the root protection zones, if needed, will be installed in accordance with BS5837:2012 *Trees in Relation to Design, Demolition and Construction: Recommendations* (BSI, 2012).

Protection of Nesting Birds

5.2.3 All wild birds are protected under the *Wildlife and Countryside Act 1981* (as amended) while they are breeding. It is advised that any works that will affect habitats suitable for use by nesting birds, such as the demolition of the buildings and vegetation clearance, are scheduled to commence outside the bird nesting season. Commencement of works in the nesting season must be informed by a pre-works nesting bird survey, carried out by a suitably experienced ecologist. The bird breeding season typically extends between March to August inclusive.

5.2.4 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.

Precautionary Actions in Relation to Bats

5.2.5 Although no evidence of use of the working area by roosting bats has been detected, owing to the presence of features suitable for use by roosting bats, particularly at the slate and tile covered roofs, the ridge copings and the timber fascia / gutter boards at Buildings 2 and 7, it is recommended that these features are removed carefully by hand. Slates, tiles and ridge copings should be lifted upwards, rather than slid and the underside of the slate / tile should be checked for bats prior to stacking or discard.

Discovery of a Bat During Works

5.2.6 If at any time during the works a bat is discovered or suspected all contractors must withdraw from the area and ERAP (Consultant Ecologists) Ltd (01772 750502) or the Bat Conservation Trust must be contacted for further guidance.

Invasive Plant Species

5.2.7 It is an offence under the *Wildlife and Countryside Act 1981* (as amended) to cause the spread of Virginia Creeper and Montbretia and some species of Cotoneaster in the wild. It is recommended that these three species (refer to **Figure 2**) are grubbed out by the roots during site clearance and disposed of either by burying on site or removal to a suitable tip.

5.3 Recommendations in Relation to Site Design and Provision of Opportunities for Biodiversity

Appropriate Use of Lighting

5.3.1 Paragraph 185(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*."

5.3.2 Any external lighting to be installed at the site must involve the use of appropriate products and screening, where necessary, to ensure no excessive artificial lighting shines over the recommended roost provisions (see below), the garden habitats and other habitats outside the curtilage of the residential property, as lighting overspill may deter use by wildlife such as foraging bats.

5.3.3 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).

Enhancing Habitats for Roosting Bats

5.3.4 To enhance the opportunities at the site for roosting bats it is recommended that the development incorporates the installation of bat access panels at the new property. This can be achieved at the stone clad elevations, as presented on the specification appended at **Figure 3**.

Enhancing Habitats for Nesting Birds

5.3.5 To enhance opportunities for use by nesting birds it is recommended that provisions for nesting birds are installed at the new property. **Figure 3** (appended) provides recommendations and a specification. RSPB advice states that boxes should ideally be sited facing north to east, to avoid exposure to direct sunlight, which may cause overheating of chicks in the nest. The boxes should be at least 4 metres from ground level.

Landscape Planting

5.3.6 To enhance the value of the site for biodiversity and to provide an attractive outdoor space at the new property the following recommendations are made:

a. A native hedgerow could be planted at the new boundary of the garden curtilage for the Higher Newfield Edge property. Suitable woody species for the hedgerow comprise Hawthorn (*Crataegus monogyna*), Hazel (*Corylus avellana*), Holly (*Ilex aquifolium*), Dog-rose (*Rosa canina*) and Blackthorn (*Prunus spinosa*), a mixture (rather than one single dominant species) is preferable;

b. Use of shrubs and plants that are attractive to invertebrates in the borders and planters. Suitable species comprise Lavender (*Lavandula*), *Hebe*, *Ceanothus,* Foxglove and *Allium* species; and

c. The use of native plant species and species known to be of value for the attraction of wildlife, including foraging bats, in the landscaping scheme is recommended. Appropriate plants comprise night-scented flowers. A list of suggestions is presented below.

Table 5.1: Recommended plants for use in gardens to attract bats[5]

Flowers for Borders		Herbs
Aubretia (spring to early summer)	Mexican aster (summer to autumn)	Angelica
Candytuft (summer to autumn)	Michaelmas daisy	Bergamot (summer to early autumn)
Cherry pie (summer to autumn)	Night-scented stock (summer)	Borage (spring to early autumn)
Corncockle	Ox-eye daisy (summer)	Coriander (summer)
Cornflower	Phacelia (summer to autumn)	English marigolds
Corn marigold	Poached egg plant (summer)	Fennel (summer to early autumn)
Corn poppy	Primrose (spring)	Feverfew (summer to autumn)
Echinacea	Red campion (spring)	Hyssop (summer to early autumn)
English Bluebell (spring)	Red valerian	Lavenders
Evening primrose	Scabious (summer)	Lemon balm
Field poppies (summer)	St John's wort (spring)	Marjoram (summer)
Honesty (spring)	Sweet William (summer)	Rosemary (spring)
Ice plant 'Pink lady' (early autumn)	Tobacco plant	Sweet Cicely
Knapweed (summer to autumn)	Verbena (summer to autumn)	Thyme (summer)
Mallow (summer to autumn)	Wallflowers	

6.0 CONCLUSION

6.1 The proposals at Higher Newfield Edge can be achieved with no adverse effect on designated sites for nature conservation, Priority Habitat, irreplaceable habitats and rare plant species. The recommendations in **Section 5.0** outline the mandatory measures and additional actions to be applied to avoid adverse effects on

[5] Extracted from the BCT publication '*Encouraging bats, A guide for bat-friendly gardening and living*' (Bat Conservation Trust, 2016).

protected species and to ensure compliance with wildlife legislation, the National Planning Policy Framework (NPPF) and best practice.

6.2 The report describes the appropriate and proportionate measures and recommendations that aim to enhance the value of the site for wildlife such as roosting bats, nesting birds and biodiversity to achieve measurable gains for biodiversity and compliance with the NPPF, local planning policy and best practice.

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8.0 APPENDIX 1: TABLES

Table 8.1: Photographs

Photo 1: South facing roof pitch of the Higher Newfield Edge property (Building 2) and surrounds

Photo 2: Stone wall at the southern site margin and Building 6 (foreground) and Buildings 3 and 5 (background)

Photo 3: Retaining bank and rockery to the rear (south) of Pentangle Barn (Building 1)

Photo 4: Existing access track to the site

Photo 5: North elevation of Pentangle Barn (building 1 (left)) and Higher Newfield Edge (Building 2 (right))

Photo 6: Northern elevation of Pentangle Barn (Building 1)

Photo 7: South-facing roof pitch of Higher Newfield Edge (Building 2 (left)) and Pentangle Barn (Building 1 (right))

Photo 8: Join between stone tile roof covering at the off-site building and Pentangle Barn

Photo 9: Southern (rear) elevation of Pentangle Barn (Building 1)

Photo 10: Gaps at the roof verge on the porch attached to the northern (front) elevation of Pentangle Barn (Building 1)

Photo 11: Slate covered roof of porch attached to the northern (front) elevation of Pentangle Barn (Building 1)

Photo 12: Southern and western elevations of Higher Newfield Edge (Building 2)

Photo 13: Roof at Higher Newfield Edge (Building 2)

Photo 14: Sealed soffits at single storey side extension to the west of Higher Newfield Edge (Building 2)

Photo 15: Western elevation of Higher Newfield Edge (Building 2)

Photo 16: Gap in the stonework at the eastern elevation of Higher Newfield Edge (Building 2). Inspection with an endoscope confirmed only extends 0.08 metres into the wall; no bats or bat droppings found.

Photo 17: Gap behind fascia at eastern elevation of Higher Newfield Edge (Building 2). Inspection with an endoscope carried out; no bats or bat droppings found.

Photo 18: Southern and eastern elevations of the triple garage (Building 3)

Photo 19: Eastern and northern elevation of Building 3

Photo 20: Western and southern elevations of Building 3

Photo 21: Building 4 (to be retained)

Photo 22: Building 5

Photo 23: Underside of roof at Building 5

Photo 24: Western elevation of stable (Building 6)

Photo 25: Interior of Building 6

Photo 26: Interior of Building 6

Photo 27: Northern and western elevations of Building 7

Photo 28: Eastern elevation and roof of Building 7

Photo 29: Interior of Building 7

Photo 30: Interior of Building 7

Table 8.2: Activity Survey 1, Date: 12th August 2021 Sunset time: 20:46, Start time: 20:25

Survey Position 1: Leah Hart

Time	Species	Notes
-	-	No bat activity observed or detected
22:20		End
The Anabat Express made no recordings of bat activity.		

Survey Position 2: Victoria Burrows

Time	Species	Notes
-	-	No bat activity observed or detected
22:20		End
The Anabat Express made no recordings of bat activity.		

Survey Position 3: Chris Swindells

Time	Species	Notes
21:28	Common pipistrelle	Distant brief call from the south (behind surveyor).
22:20		End
The Anabat Express made no recordings of bat activity.		

Camera Positions 1 and 2

Time	Species	Notes
-	-	No bats observed on the infra-red video recordings.
22:20		End

Table 8.3: Activity Survey 2, Date: 3rd September 2021, Sunrise time: 06:18, Start time: 04:30

Survey Position 1: Leah Hart

Time	Species	Notes
-	-	No bat activity observed or detected
06:33		End
The Anabat Express made no recordings of bat activity.		

Survey Position 2: Victoria Burrows

Time	Species	Notes
05:14	Common pipistrelle	Brief pass
05:28	Common pipistrelle	Brief pass
06:33		End
The Anabat Express made the following recordings: 5 common pipistrelle recordings with social calls between 04:39 and 04:42; 2 common pipistrelle recordings at 05:14; and 3 common pipistrelle recordings at 05:28.		

Survey Position 3: Chris Swindells

Time	Species	Notes
04:39	Common pipistrelle	Distant brief call from the south (behind surveyor).
04:42	Common pipistrelle	Pass over surveyor and foraging around Beech tree
05:14	Common pipistrelle	Pass over surveyor and foraging around Beech tree
05:20	Common pipistrelle	Pass
05:28	Common pipistrelle	Pass
06:33		End
The Anabat Express made the following recordings: 6 common pipistrelle recordings with social calls between 04:37 and 04:42; 2 common pipistrelle recordings between 05:14 and 05:15; and 2 common pipistrelle recordings at 05:28.		

Camera Positions 1 and 2

Time	Species	Notes
-	-	No bats observed on the infra-red video recordings.
06:33		End

9.0 APPENDIX 2: FIGURES

Figure 1: Aerial Image of the Site and its Surrounding Habitats

Figure 2: **Phase 1 Habitat and Vegetation Map, Also Showing Bat Surveyor Positions**

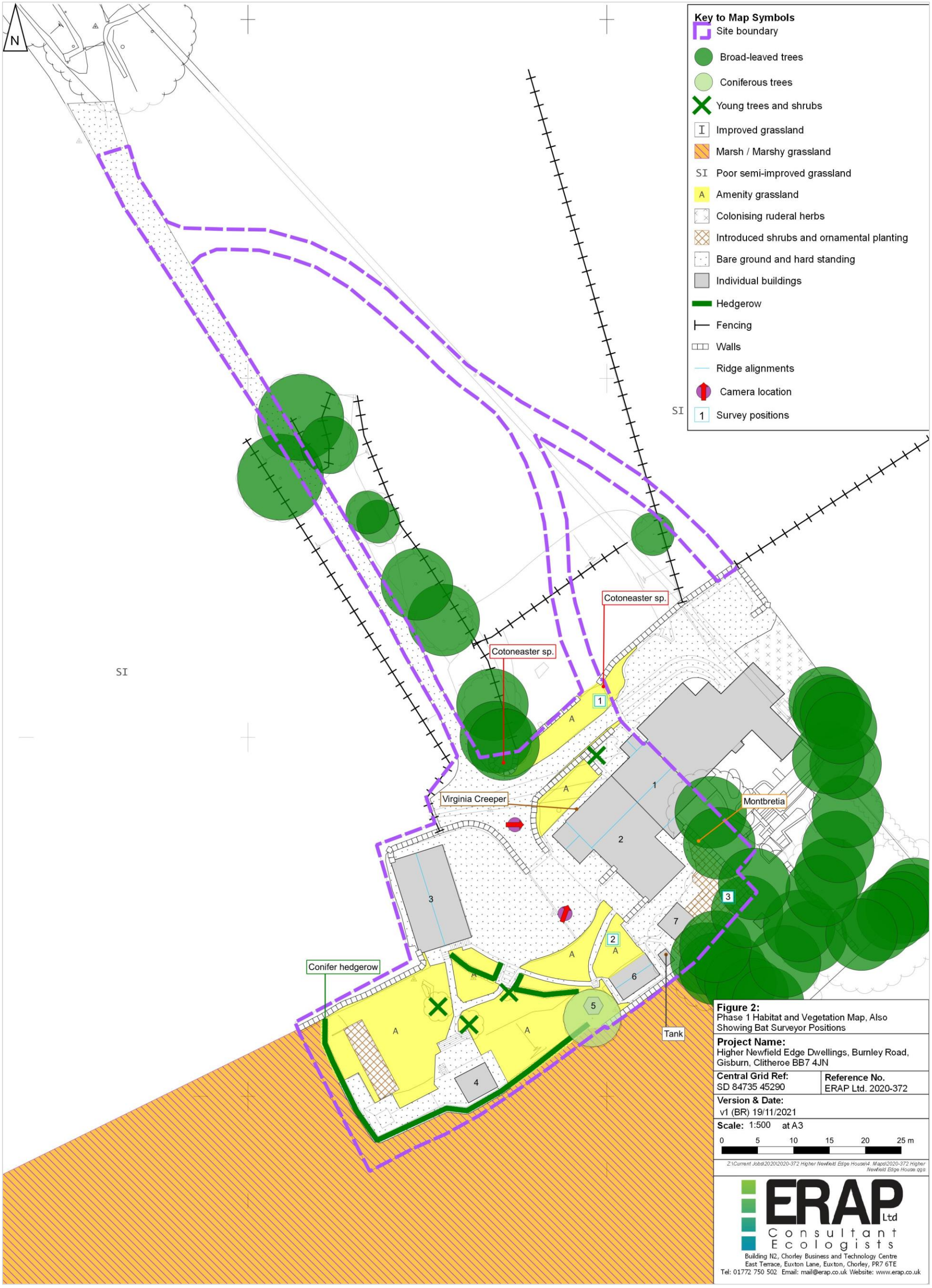

Figure 3: Plan to Show Ecological Protection and Enhancement