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Tyrer Ecological Consultants Ltd, Formby Business Centre, 42 Duke Street, Formby, L37 4AT

Preliminary Ecological Appraisal

September 2021

Land opposite Llwybr Y Garth

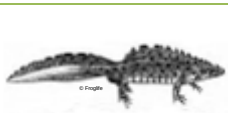
Yr Ochr

Fron

Llangollen

LL20 7RS

National Grid Reference: SJ26794115



Land opposite Llwybr Y Garth, Yr Ochr, Fron, Llangollen, LL20 7RS
Preliminary Ecological Appraisal

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Executive Summary

As part of a proposed planning application regarding the a plot of land opposite Llwybr Y Garth, Llangollen; a Preliminary Ecological Appraisal (PEA) was undertaken by Tyrer Ecological Consultants Ltd during July 2021, in accordance with the *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2017) and other best practice guidance. It is understood that proposals entail redevelopment of the land into one new dwelling with associated landscaping and access. This report was commissioned by Blueprint Architectural Ltd.

As part of the ecological appraisal process habitats on site have been identified using Phase 1 Habitat categories from the Joint Nature Conservation Committee Phase 1 Habitat Methodology standards (JNCC, 2010). One tree present within the site boundary was assessed for their suitability to host roosting bats.

Extensive findings, conclusions and recommendations are presented throughout the report; however, the reader should be aware of the following Key recommendations.

Breeding Birds: The site contains nesting platforms suitable for use by birds, namely the trees and scrubby habitat. *All vegetation clearance should occur outside of the breeding bird season of March-August in order to avoid potential disturbance to birds, unless it can be demonstrated by a suitably qualified professional ecologist that birds are absent beforehand.*

Other Terrestrial Mammals: The site can broadly be considered of commuting, foraging and hibernating value to European Hedgehogs subject to their presence in the area. *It is recommended that a Method Statement including details of Reasonable Avoidance Measures is created by a suitably qualified Ecologist/Ecological Clerk of Works to avoid risk of harm to this species.*

Herptiles: Whilst there are limited areas of suitable terrestrial habitat for Great Crested Newts (GCN) and other herptiles on the site, there is poor connectivity between the site and any ponds in the wider area. *Therefore, as a precautionary measure, these species and especially GCN should be included within the Reasonable Avoidance Methods Statement (RAMS) described above which should be strictly adhered to from commencement to completion of the proposed works to ensure no risk to GCN/other amphibians ensues.*

Biodiversity Enhancement: A series of recommendations have been given within section 8.0 and Appendix III which provide opportunities for biological enhancement at the development site and within the wider area. Enhancement opportunities include recommendations relative to the provision of favourable planting and landscaping, with wildlife boxes.

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1.0 Introduction & Objectives

- 1.1 As part of a proposed planning application regarding the a plot of land opposite Llwybr Y Garth, Llangollen, (see Figure 1.1); a Preliminary Ecological Appraisal (PEA) was undertaken by Tyrer Ecological Consultants Ltd during July 2021, in accordance with the *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2017) and other best practice guidance. It is understood that proposals entail redevelopment of the land into one new dwelling with associated landscaping and access.

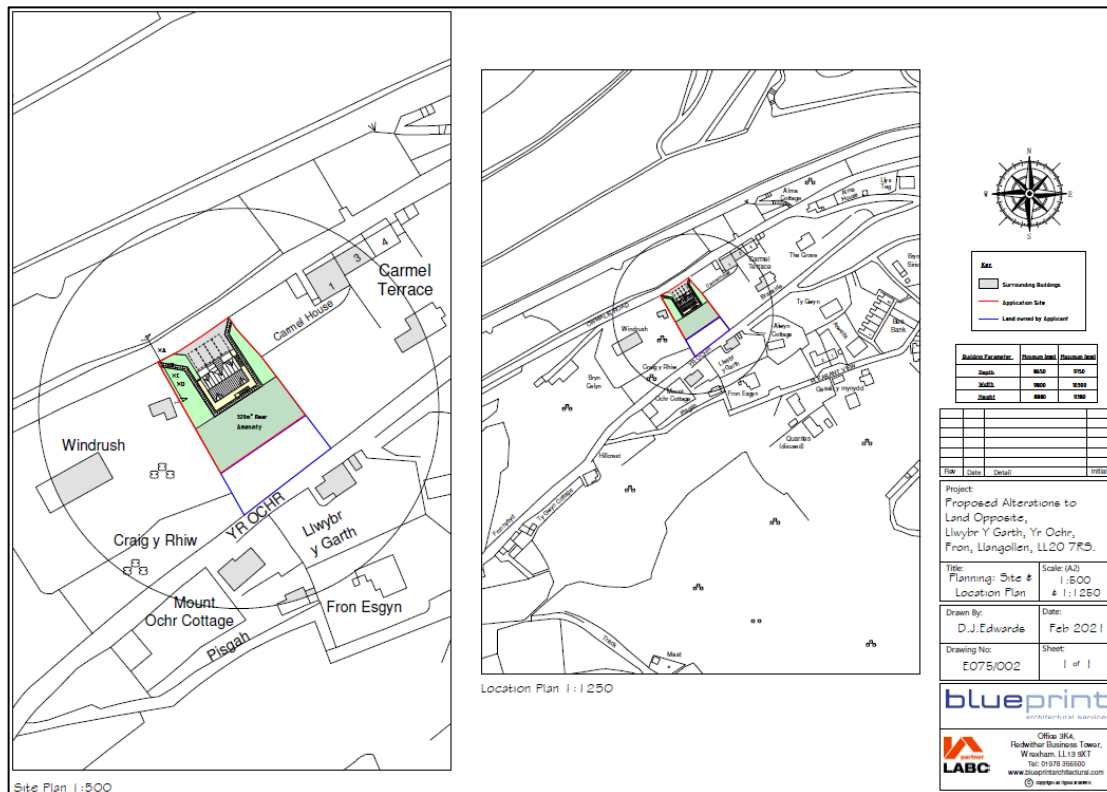


Figure 1.1: Proposed site and location plan (©Blueprint Architectural Ltd).

- 1.2 Ecological surveys, particularly where a specially protected / noteworthy species is or may be present, are generally required as part of the Local Authority's Planning Policies. This survey and report was commissioned by Blueprint Architectural Ltd.

Aims & Objectives

- 1.3 The aim of the survey was to ascertain the nature of the land, and where possible obtain information on any priority wildlife habitats, or species, that may be present and if so determine if they will be affected by the proposals. The survey therefore includes the following objectives:
- Gather baseline ecological information on site/off site (as necessary),
 - Identify any likely ecological constraints associated with the proposals for the site (i.e. the presence of protected/priority habitats or species that exist within the confines of the application boundary, or zone of influence (ZOI),

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- Identify mitigation / compensation measures likely to be required in line with the mitigation hierarchy (i.e. avoidance > impact minimisation > mitigation > compensation),
- Identify additional survey requirements following on from this preliminary appraisal,
- Identify a series of enhancement opportunities for biodiversity in line with national and local planning policy following '*Biodiversity Net Gain: Good practice principles for development*' (CIEEM *et. al.*, 2019).

1.4 As part of this ecological appraisal:

- Habitats on site have been identified and mapped using the '*Joint Nature Conservation Committee (JNCC) Phase 1 Habitat Handbook*' (JNCC, 2010), and
- All trees have been assessed for their potential to host roosting bats.

1.5 As part of the Local Planning Authorities (LPA) planning policies and obligations to the Planning Framework, ecological surveys are generally required prior to planning permission being granted, particularly where protected/priority species are, or may be present, that could be affected by the proposals for which the application seeks consent.

1.6 This report will therefore provide baseline information as derived from the diurnal appraisal process outlined above and recommend any necessary additional surveys, or work, where applicable, to provide a conclusive ecological impact assessment.

1.7 The Applicant should be aware that if during the appraisal:

- The application site/area was found to be suitable for any European Protected Species (EPS), otherwise protected, or priority habitats/species, or,
- Signs of use by particular protected species were found, or suspected, or,
- Seasonal constraints significantly limit the gathering of ecological information to arrive at an accurate conclusion on which the planning application can proceed,

Then more detailed surveys may be recommended where necessary, to allow the ecologist to arrive at a conclusive impact assessment.

1.8 If any protected species was subsequently found during detailed further surveys and / or may be affected by the development proposals, then a European Protected Species Mitigation Licence (EPSML) may be required to proceed with the development.

1.9 Where more detailed surveys are recommended by the ecologist, following ecological appraisal, then Local Planning Authorities (LPA's) on the advice of their ecological advisors, may not grant permission until such time that all relevant material information is gathered in accordance with their obligations to the legislature.

1.10 Protected/priority species omitted from this report have been discounted due to factors including obvious absence/isolation of suitable habitats, and/or distributional aspects negating the necessity to survey for them, and/or the proposed works were not considered to negatively impact the species or encroach on areas where the species may be present.

2.0 Legislation & Policy

2.1 The legislature considered for the purposes of this report includes the following:

- Conservation of Habitats and Species Regulations (amendment) (2019) (EU Exit)
- Wildlife and Countryside Act (1981) (as amended)
- Countryside Rights of Way (CRoW) Act (2000)
- Natural Environment and Rural Communities (NERC) Act 2006
- The Environment (Wales) Act (2016)

2.2 These acts entail relevance to both protected and invasive species. The degree of protection offered to taxa provided within existing UK and EU legislature often varies depending on species/group, for example, some species may purely be protected during one of its life stages (e.g. common species of breeding bird whilst nesting/with eggs/young); some species may receive full protection within the EU (e.g. otter), whereas others may be protected solely on a national basis (e.g. grass snake).

2.3 Table 2.1 contains appropriate legislature to each species/group specifically respective to the site, and provides the relevance of said legislation.

Table 2.1 - Relevant Legislation

Species Group/Species	Relevant Legislation	Level of Protection
Bats	CRoW Act (2000) The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (SI 2019/579) Wildlife and Countryside Act (1981) (as amended) Environment (Wales) Act (2016)	All British bats and their roosts are afforded full protection from damage/destruction and bats may not be injured/killed/taken at any stage. Bats are also protected from reckless disturbance; once identified, roosts are protected whether the bat is in occupation or not.
Birds (Breeding)	CRoW Act (2000) Wildlife and Countryside Act (1981) (as amended) Environment (Wales) Act (2016)	All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependant young are protected.

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Great Crested Newt (GCN)	CRoW Act (2000) Conservation of Habitats and Species Regulations (2019) (EU Exit) Wildlife and Countryside Act (1981) (as amended) Environment (Wales) Act (2016)	Great Crested Newts (GCN's) are fully protected from disturbance, killing, injuring or possession at any life stage. Confirmed breeding ponds and resting places are afforded the same protection.
Invasive Plant Species	Wildlife and Countryside Act (1981) (as amended)	Species listed within Schedule 9 Wildlife and Countryside Act (1981) (as amended) as invasive, including Japanese Knotweed (<i>Reynoutria japonica</i>) and Himalayan Balsam (<i>Impatiens glandulifera</i>). The Act makes it an offence for any person to grow or cause to grow in the wild any plants listed as invasive.
Reptiles	Conservation of Habitats and Species Regulations (2019) (EU Exit) - SL/SS Wildlife and Countryside Act (1981) (as amended) - SL/SS CRoW Act (2000) Environment (Wales) Act (2016)	All native reptile species have some degree of protection in the UK, through section 9(1) and (5) (specified in Schedule 5) of the Wildlife and Countryside Act 1981 (as amended). Sand lizard (SL) and smooth snake (SS) are species of principal importance however with greater protection(s).

Policy

- 2.4 Planning Policy Wales, 10th Edition (2018) is the Welsh Government's policy document and it describes the land use context for using land sustainably. The document supports every strategy published by the Welsh Government and it is supplemented by a variety of Technical Advice Notes (TAN's) and any circulars.
- 2.5 There are several plans, strategies and national, sub-regional and local policy statements which provide a framework for development in the Plan area. The Planning and Compulsory Purchase Act (2004) makes it a requirement for local planning authorities in Wales to prepare a Local Development Plan (LDP) for their areas.

Denbighshire County Council prepared a plan, namely the 'Local Development Plan (2006 – 2021)', which was formally adopted in June 2013 and supersedes any previous development plans for the area. A new plan, the 'Replacement Local Development Plan 2018 - 2033', which will replace the current adopted plan, is currently under review. Until this new plan is adopted, the Local Development Plan remains in effect.

- 2.6 Planning authorities must therefore follow a step-wise approach to maintain and enhance biodiversity and build resilient ecological networks by ensuring that any adverse environmental effects are firstly avoided, or minimized, or mitigated, and as a last resort compensated for; enhancement must be secured wherever possible.

- 2.7 The first priority for planning authorities is therefore to avoid damage to biodiversity and ecosystem functioning. Where there may be harmful environmental effects, planning authorities will need to be satisfied that any reasonable alternative sites that would result in less harm, no harm or pro-gain have been fully considered.
- 2.8 Planning authorities should ensure that features and elements of biodiversity value are retained on site, and enhanced or created where ever possible, by adopting best practice site design and green infrastructure principles. The provision of up to date ecological survey information will assist in this process. Where necessary, planning authorities should seek to modify the development proposal through discussion with the applicant at the earliest possible stage. Biodiversity and green infrastructure modifications should draw on the issues and opportunities identified in a preliminary assessment. In some circumstances, it will be appropriate to attach planning conditions, obligations or advisory notes to a permission, to secure biodiversity outcomes.
- 2.9 When all other options have been exhausted, and where modifications, alternative sites, conditions or obligations are not sufficient to secure biodiversity outcomes, offsite compensation for unavoidable damage must be sought. This should normally take the form of habitat creation, or the provision of long-term management arrangements to enhance existing habitats and deliver a net benefit for biodiversity.

Where the adverse effect on the environment clearly outweighs other material considerations, the development should be refused.

- 2.10 The Environment (Wales) Act 2016 (“the Act”) - requires local planning authorities to have regard to area statements in the development of Local Development Plans.

Part 1 of the Act promotes sustainable management of natural resources, and in Part 1 section 6 states:

“A public authority must seek to maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in so doing promote the resilience of ecosystems, so far as consistent with the proper exercise of those functions.”

- 2.11 All British bats and their ****roosts** are afforded protection under Schedule 5 of the Wildlife & Countryside Act (1981) (as amended) and are listed in Schedule 2 of the Conservation of Habitats & Species Regulations 2017. When dealing with cases where a European Protected Species (all UK bats) may be affected, a planning authority is a competent authority within the meaning of the Regulation 7 of the 2017 Regulations and therefore has a statutory duty to have due regard to the provisions of the Regulations in the exercise of its functions.
- 2.12 The presence of a species protected under European or UK legislation, or under Section 7 of the Environment (Wales) Act 2016 is a material consideration when a planning authority is considering a development proposal which, if carried out, would be likely to result in disturbance or harm to the species or its habitat and to ensure that the range and population of the species is sustained.
- 2.13 Figure 2.2 overleaf is a process model that surmises how ecological issues should be dealt with in the context of the planning process.

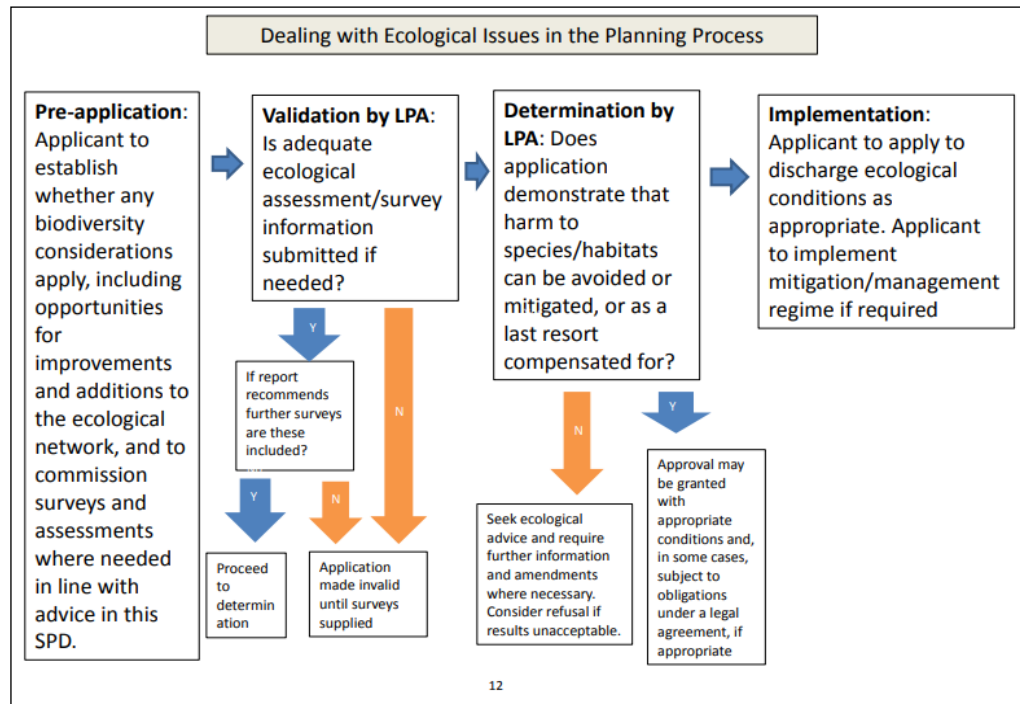


Figure 2.2 - Dealing with ecological issues in the planning process

3.0 Priority Habitats & Species

National context

- 3.1 In the United Kingdom, legal protection and otherwise legislative recognition is afforded to particular habitats and species. Certain habitats and species are considered to hold nature conservation importance and are thus protected due to factors such as their ecological functionality, their rarity, their vulnerability, environmental importance or declining population/status. They are referred to as priority habitats and priority species.
- 3.2 The UK Biodiversity Action Plan (UKBAP) provided a statutory basis for lists of habitats and species of national conservation importance - now transposed under section 7 of the Environment (Wales) Act 2016.
- 3.3 The following Priority habitats and species are considered relevant to the survey area:

Habitats:

- Hedgerows

Species:

- Brown long-eared (*Plecotus auritus*),
- Soprano Pipistrelle (*Pipistrellus pygmaeus*),
- Bird species that include: House Sparrow (*Passer domesticus*), Dunnock (*Prunella modularis*), Song Thrush (*Turdus philomelos*), Bullfinch (*Pyrrhula pyrrhula*),
- Great Crested Newt (GCN) (*Triturus cristatus*),
- Common toad (*Bufo bufo*),
- Flora that includes Purple ramping-fumitory (*Fumaria purpurea*)

District context

- 3.4 Local Biodiversity Action Plans (LBAP's) are a way of encouraging people to work together and deliver a program of continuing action for biodiversity at a local level. LBAPs also embrace the idea of 'local distinctiveness'; habitats and species which are not considered UK conservation priorities can be catered for by LBAPs if they are of particular local significance.

LBAP's set out practical steps that aim to:

- Help protect biodiversity,
- Enhance and improve biodiversity where possible, and,
- Promote biodiversity at a local level

4.0 Survey Methods

- 4.1 As part of the Preliminary Ecological Appraisal report, a desk-top and field-based study was conducted. Methods for both components of the appraisal are given below.

Desktop Study

- 4.2 Prior to a site visit a desktop study was conducted using online resources to obtain information pertaining to any sites afforded statutory (e.g. SSSI) and non-statutory (e.g. LWS) designations within 2.0km of the site boundary. To do so, the 'Multi Agency Geographic Information for the Countryside (MAGIC – provided by Defra)' was accessed to gather such information; this interactive mapping service was also used to locate any European Protected Species Mitigation Licenses (EPSML) and species records to further inform conclusions concerning protected species in the context of the study site and its proposed development.
- 4.3 Historic satellite imagery was reviewed using sources such as Google Earth (© 2020/21) to help establish past use of the land and determine the nature of adjoining and extending habitats; such information aids in the understanding of how the site might interact with its surroundings ecologically and its value in that context, and how the development may impact at a wider scale.
- 4.4 In addition the Council Planning Portal 'Search for planning applications' function was utilised to help inform the desktop study by analysis of existing publicly accessible ecological survey results that have been carried out locally within the previous five years.
- 4.5 A commercial data request to the Local Environment Records Centre serving the area has not been sourced during this preliminary appraisal assessment and is justified through application of the following recent guidance:

1) The Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK (CIEEM, 2020) states: "It is generally expected that a desk study, including a data search, will be a key part of the ecological surveys or reports produced to inform a planning application. **Freely available web-based sources of data and contextual information should always be used**; in some cases, it may be acceptable to not undertake a data search with the LERC or other relevant NSS or local interest groups, for example:

ii) *Situations where the data search would be extremely unlikely to provide information needed to inform the assessment; due to the **scale** and **location** of the proposed development. The appropriateness of excluding a data search will need to be judged on a case-by-case basis as, in most situations, it will be essential to carry out such a search even if the development is very small or is likely to have a low impact. It can be very difficult to demonstrate that a data search would not have provided relevant information without obtaining and reviewing those data.*

iii) *In some cases for Preliminary Roost Assessments of buildings in low impact / small-scale scenarios, such as an extension to a residential property, loft conversions (full or partial), installation of Velux/dormer windows, single modern agricultural or similar building conversion or demolition; however, it should not be assumed that data searches are never required for such scenarios and this must be judged on a case by case basis and justified accordingly.*

2) The Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017) states: *“Very occasionally it might be possible to carry out a robust PEA without obtaining LERC/NBDC/CEDaR data; this will usually only apply to **low impact or small-scale projects** (e.g. by virtue of size, extent, duration of works, magnitude and locality), and should be determined on a case-by-case basis.”*

As exemptions as made **bold** above can be applied for the proposed development at the application site in good practice, it is considered unnecessary to conduct a commercial data request at this time, however, if a data search is considered to be necessary by the Local Authority or advisory body to better inform the appraisal, a proportionate data search should be commissioned with results interpreted into the conclusions and recommendations of a re-issued/updated report.

Field Survey

- 4.6 A daytime preliminary ecological appraisal was conducted on 29th July 2021 in bright, dry conditions (15°C), wind 2/12 (Beaufort scale), 15% cloud by the following surveyor (Table 4.1).

Table 4.1 - Surveyor credentials

Name	Description of relevant credentials
Mr. M. Mulholland (Seasonal Ecologist)	Over 21 years' experience as a professional ecologist undertaking surveys for a wide variety of taxa

Floristic assessment

- 4.7 The survey followed UK industry standard Joint Nature Conservation Committee (JNCC) Phase 1 Habitat Methodology standards (JNCC, 2010) with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) Technical Guidance Series “Guidelines for Preliminary Ecological Appraisal 2nd Edition (CIEEM, 2017).

- 4.8 During the survey walkover, botanical assemblages were assessed and the land was inspected for the presence of red-listed (Stroh *et al*, 2014; Hodgetts, 2011), s.41 and LBAP species alongside specially protected species as listed under Schedule 8 of the Wildlife and Countryside Act (WCA) (1981) (as amended) and / or Schedule 5 The Conservation of Habitats and Species (amendment) (EU exit) Regulations (2019). Species nomenclature follows Stace, C. (2019) – definitive English names.
- 4.9 Additional to attributing ecological value to red-listed / BAP species, in accordance with existing CIEEM guidance, a geographic frame of reference is also adopted. Plant species and habitats may be recognised for their ecological notoriety on a geographical scale which is adopted on a site-to-site basis (see Figure 4.1 below).

For a site-relevant species list, see Appendix II.

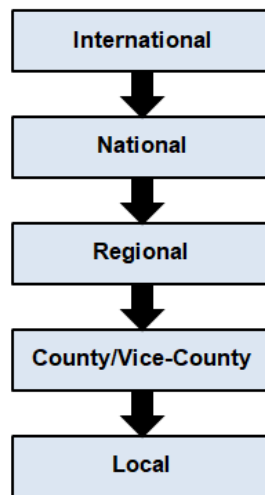


Figure 4.1 - Geographic Frame of Reference entailing degrees of conservation importance

- 4.10 In combination with assessing the area in relation to flora and habitats of conservation importance, the land was also assessed in relation to the presence of invasive non-native species (INNS) as listed under Schedule 9 (Part II) of the Wildlife and Countryside Act (1981) (as amended).

Faunal assessment

- 4.11 The identification and/or evidence of fauna encountered would be documented whilst in tandem the area was assessed for the potential to support the priority species covered in the previous tables. The 'walkover' also aimed to identify any ephemeral pools or unmapped waterbodies.

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Bats

- 4.12 The site would be assessed for bats, buildings (where present) would be inspected for potential places that may be of value to bats and to determine evidence of use. This typically involves a search for potential roost features (PRF) both internally (investigation of loft spaces/upper floors/internal elevations) as well as externally, comprising an investigation of features (roof material, building components) using a high powered torch. Field signs of bats typically comprise bat droppings, incidental animal presence, dead specimens and/or prey items. The surrounding habitat was also considered in terms of general suitability. No buildings are present within the application site boundary.
- 4.13 Trees (where present) would be inspected for places that may be of value to bats and to determine if evidence of use was present; this typically involves a search for potential roost features along with an investigation of those features using a high powered torch or close focus binoculars. Potential roost features can include woodpecker holes, rot holes, hazard beams, other vertical or horizontal cracks or splits in stems and branches, partially decayed lifted 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 with stem diameters in excess of 50mm or bat/bird boxes. A number of mature trees are present within the application site boundary.
- 4.14 Criteria for preliminary bat roost assessment are based upon the determinants given in the Bat Conservation Trust - Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016): (see Figure 4.2).

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

Suitability	Description Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions ^a and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation ^b). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential. ^c	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ^a and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions ^a and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

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

^b Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten *et al.*, 2015). This phenomenon requires some research in the UK but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in large buildings in highly urbanised environments.

^c This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

Figure 4.2 - Bat Conservation Trust (BCT) guidelines extract

4.15 Factors considered during the preliminary roost assessment include:

- Knowledge of bat species relevant to the site location and geographical range,
- Nature of the immediate / surrounding habitat in relation to foraging opportunities,
- Presence and conditions of loft spaces, upper floors, roof linings,
- Presence / absence of roost potential,
- Value of roost potential, if present.

Breeding Birds

4.16 Buildings, trees, hedges, and scrub (where present) would be checked for evidence of nesting birds and suitability for relevant species. Bird species observed and heard were recorded on site, and a search was made for nest material, or areas suitable for nesting. Additional to the site's capacity to support generally common species for breeding, the area was also subject to an assessment for the site's capacity to support species especially protected under Schedule 1 of the Wildlife & Countryside Act (1981) (as amended), for example Barn Owl (*Tyto alba*) and other priority species.

Other terrestrial mammals

4.17 The walkover included a search for field signs of Badger (*Meles meles*) which includes signs of activity such as digging, setts, 'runs' leading to and from a sett and the existence of latrines or 'snuffle' holes where badgers have foraged in the ground.

GCN

4.18 During desktop assessment a 500m search was undertaken from a site-central grid reference in relation to the presence of ponds, ditches or other water bodies that may support Great Crested Newts (GCN). The information gathered would then be used to aid in establishing if more detailed surveys are required.

NB: *English Nature's (now Natural England) Great Crested Newt Mitigation Guidelines (2001) states ponds within 500m of a proposed development site should be considered for their potential to support GCN, however, in some instances this distance may be reduced to 250m due to the presence of physical barriers and obstructions, or based on the likely magnitude of impacts arising from the proposed development.*

Given the low impact nature and small scale of the development (circa 0.13 hectares) and following best practice, and taking into account the significant physical barriers to connectivity presented by the adjacent busy A5 to the north, a proportionate assessment of ponds within 250m from site has been applied; ponds outside of this range and associative flora/fauna are highly unlikely to be impacted.

4.19 No ponds were located within the site boundary or within a 250m buffer. One pond was located within the wider 500m buffer at 317m to the north; taking into account the above the GCN Rapid Risk Assessment extracted from the Natural England 'Template for Method Statement' was therefore applied to the site to assess the risk of causing an offence in relation to this species.

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4.20 The site and its surroundings were assessed for suitability for use by reptiles, with particular attention paid to features that could be used as basking areas (e.g. south-facing slopes), hibernation sites (e.g. banks, walls, piles of hardcore) and opportunities for foraging (e.g. rough grassland and scrub). Beebee & Griffiths (2000) state specific habitat preferences of common UK reptiles:

- Common Lizards (*Zootoca vivipara*) use a variety of habitats from woodland glades to heaths, walls and pastures, as well as brownfield sites,
- Slow-worms (*Anguis fragilis*) use similar habitats to Common Lizards, and are often found in rank grassland, gardens and derelict land under refugia,
- Grass Snakes (*Natrix natrix*) have broadly similar requirements to Common Lizards but with a greater reliance on ponds and wetlands, where they prey on amphibians.

In assessment of a site for reptiles important habitat characteristics are considered, outlined in Table 4.2, as derived from the Reptile Habitat Management Handbook (Edgar, 2010).

Table 4.2 - Important habitat characteristics for reptiles

1. Location (in respect of species range)	7. Connectivity to 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

4.21 The results, conclusions and recommendations of this report are based on a number of factors i.e.

- Skills and experience of the surveyor,
- Knowledge of flora and fauna relevant to the site location and geographical range,
- Nature of the immediate and surrounding habitat in relation to shelter, foraging and commuting opportunities.

4.22 All aspects of the field survey were undertaken in line with the current government and CIEEM standing guidance during the COVID-19 'Coronavirus' pandemic.

4.23 The results, conclusions and recommendations of this report have been assessed by Mrs. K. Wilding, Director of Tyrer Ecological Consultants Ltd, and her assessment concurs with the findings and recommendations of Mr Pescod.

5.0 Limitations

5.1 This report does not contain a comprehensive list entailing the totality of botanical taxa on site. Species listed within Appendix II are recorded from a combination of the seasonal timing the survey took place and botanical identification skills of the surveyor. Many plant species are only evident at certain times of the year; consequently it is possible that some plant species may have gone undetected.

5.2 The optimal time of the year to carry out a preliminary ecological appraisal / phase 1 habitat survey is April to October; thus the survey was carried out within the optimal season.

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- 5.3 Due to the dense, overgrown nature of the site, not all areas were fully accessible; however, sufficient access was feasible with which to make sound ecological conclusions.

6.0 Desk Study Results

- 6.1 The land opposite Llwybr Y Garth ("the application site", circa 0.13 hectares) is situated between the Cwmalis Road and Yr Ochr in Fron, Langollen, approximately 11.3km south-west of Wrexham town centre (see Figure 6.1).



Figure 6.1 - Location of application site within the surrounding landscape, with bat records held by Tyrer Ecological Consultants Ltd (Source: Google 2018)

- 6.2 The application site can be broadly described as a small parcel of land at the outskirts of Froncysyllte village with a steep north facing slope, currently in disuse and subject to heavy scrub encroachment and regeneration, with access from either Cwmalis Road to the north or Yr Ochr to the south.
- 6.3 Immediate environs include the aforementioned village of Froncysyllte to the east, whilst to the north, south and west; land use is predominantly agricultural and interspersed with regions of broadleaved woodland along the heavily contoured areas, and the River Dee to the north.

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- 6.4 The extending habitat continues in similarity to that of the immediate with the wooded, steeply sloped land extending west to the Vale of Llangollen, whereas the north and south is dominated by arable and pasture fields. To the north, beyond the River Dee, the village of Cefn Mawr at the south-western reaches of Ruabon community adds a mixture of densely developed residential streets, schools, parkland and a cemetery, with Cefn Wood beyond and to the north-east.
- 6.5 In respect to connectivity, the site has reasonable access with minor limitations due to the two small roads present immediately to the north and south; the A5 just 24m to the north is likely to prevent access for terrestrial fauna from that direction though no such obstacles occur to the south and west. Whilst flying species would therefore have no issue accessing the site, slower moving terrestrial species may be discouraged but their presence on site cannot be ruled out entirely.
- 6.6 The described ecological frameworks are considered to offer a good array of habitats with reasonable inter-connectivity in the landscape and to the application site, which is of benefit to several species/groups for which the survey was undertaken, notably flying animals such as bats and birds associated with rural settings; small mammals are likely to be present whereas herptiles would have greater difficulty accessing. Additionally, densely vegetated land with little structural makes up a large part of the application site will provide limited basking or foraging opportunities for Herptiles, which limits site suitability for species such as lizards and snakes.
- 6.7 The protected species most typically associated with the habitats described is the Common Pipistrelle (*Pipistrellus pipistrellus*) bat, frequently associated with buildings in rural settings, and this species presence in surrounding landscape is likely. In addition, the wider landscape holds hunting value for Barn owl.
- 6.8 There are two statutory designated sites for nature conservation within 2.0 kilometres of the application site (see Table 6.1).

Table 6.1 - Statutory designated sites in the area

Site name	Designation type	Interest features
Chirk Castle and Parkland / Castell y Waun a'l Barcdir 1.8 km to the south	Site of Special Scientific Interest (SSSI)	The Grade I listed castle is known for its heavily managed, ornamental gardens; however, the site also supports a wide area of ancient wood pasture and parkland originally managed as a deer park which includes the historical earthworks Offa's Dyke and veteran Pedunculate Oak (<i>Quercus robur</i>) known as the 'Oak at the Gate of the Dead'. The standing deadwood at Chirk supports over 300 species of saproxylic insects including 17 Nationally Scarce beetle, notably the False Blister Beetle (<i>Oedemeridae sp.</i>), Tumbling Flower Beetle (<i>Mordellidae sp.</i>), and False Ladybird (<i>Endomychus coccineus</i>).

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River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid 134 m to the north	Special Area of Conservation (SAC) SSSI	This site is cited for the variety of habitats it contains including intertidal zones, water bodies and wetland, heath, grassland and woodland. It also supports a number of important species including the Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>), Atlantic Salmon (<i>Salmo salar</i>), and Otter (<i>Lutra lutra</i>).
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- 6.9 In relation to ponds none exist on site; there are no ponds mapped within 250 metres, and one within 500 metres (Pond 1); there is poor connectivity between the site and this ponds due to the presence of the busy A5 to the north, and Pond1 is also adjacent to favourable terrestrial habitat which is likely to be utilised by GCN and other amphibians subject to their presence.

NB: *Only ponds within 250 metres of site need be considered for potential to support GCN for a proposed development of this size, scale and anticipated duration in accordance with the relative guidance. Therefore whilst the report recognises ponds up to 1.0 kilometre away, it will focus on ponds with 250 metres.*

Desktop study - Species records

- 6.10 **Bats:** A search of extensive bat records held by Tyrer Ecological Consultants Ltd revealed activity records relating to Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*) and Noctule (*Nyctalus noctula*) in the area. These records date from 202 and have been submitted to the Local Environmental Record Centre for the area.
- 6.11 **Great Crested Newt –** No records of GCN were identified during the desktop assessment.
- 6.12 **Reptiles –** A search of data available for commercial use under the Creative Commons licence (CC-BY: <https://docs.nbnatlas.org/data-licenses/>) revealed a number of records pertaining to reptile species including Grass Snake (*Natrix helvetica*) and Slow-worm (*Anguis fragilis*); however, none of these records occur after 1990.

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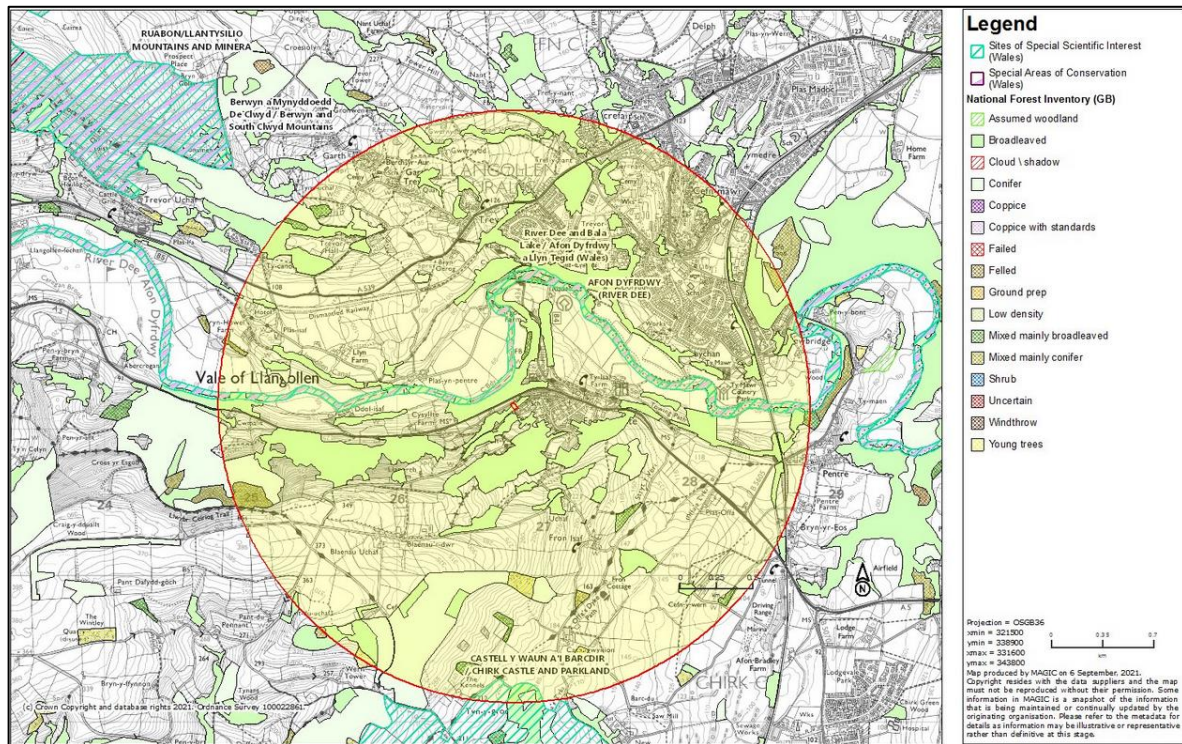


Figure 6.2 – Location of designated sites relative to the application site (Source: adapted from MAGIC Maps, 2021)

7.0 Field Survey Results

7.1 Habitat Survey

7.1.1 See Table 8.1 (below) for habitat descriptions. Refer to Appendix IV - Phase 1 Habitat Map for the location of all described habitats & Target Notes (TN). Species nomenclature follows Stace, C. (2019) – definitive English names.

Table 8.1 - Phase 1 habitat types within the survey area with target notes

Habitat Code	Broad Habitat	Description
A2.1	Scrub – dense/continuous	The site is dominated by dense, scrubby vegetation with the occasional mature tree, which has begun encroaching on the existing ornamental garden to the south which will be unaffected by the proposals. Species present include mature Sycamore (<i>Acer pseudoplatanus</i>), Ash (<i>Fraxinus excelsior</i>) saplings, dense Bramble (<i>Rubus fruticosus</i> agg.) and Wych Elm (<i>Ulmus glabra</i>), with a ground covering of Common Ivy (<i>Hedera helix</i>), Dog's Mercury (<i>Mercurialis perennis</i>) and Cleavers (<i>Galium aparine</i>).

7.1.2 No priority habitats are present anywhere within the application site.

7.2 Vegetation

- 7.2.1 No species of conservation importance were located anywhere within the survey area.
- 7.2.2 No invasive species listed on Schedule 9 of the WCA were encountered in the red line site boundary or within the immediacy of the site.

7.3 Bats

- 7.3.1 No buildings are present within the application site boundary.
- 7.3.2 One mature Sycamore tree is present within the survey area, located at the northern site boundary. An assessment from ground level found no cracks, splits, rot-holes, or other crevice features typically used by bats; therefore all trees have been categorised as having “Negligible” potential for roosting bats in line with current BCT guidance.

7.4 Breeding Birds

- 7.4.1 In relation to Schedule 1 (WCA) specially protected bird species such as Barn owl, no suitability exists for breeding given an absence of appropriate buildings or trees. No value exists on the proposed development site for breeding or hunting and impacts to such species are anticipated.
- 7.4.2 The buildings, hedgerow, trees, and scrub present through the site have potential to support nesting birds and as the proposed development may impact upon these features, nesting birds are a material consideration, specifically in relation to timings.
- 7.4.3 All birds encountered during the survey are presented in Table 8.4.1:

Table 8.4.1 - Bird species encountered during the survey

Species	Scientific Name	Conservation Status (BoCC 4)
Blackbird	<i>Turdus merula</i>	Green
Carrion Crow	<i>Corvus corone</i>	Green
Common Buzzard	<i>Buteo buteo</i>	Green
Common Raven	<i>Corvus corax</i>	Green
European Robin	<i>Erithacus rubecula</i>	Green
Swallow	<i>Hirundo rustica</i>	Green

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Wood Pigeon	<i>Columba palumbus</i>	Green
BoCC 4 - a bird of conservation concern, Amber or Red, Red being the highest conservation priority		

7.5 Other Terrestrial Mammals

Badger

- 7.5.1 No field signs were located to suggest the presence of Badgers, including any setts, latrines, pathways, hairs, footprints or feeding signs such as snuffle holes and scratched trees/logs; due to the character of the site and the typical behaviour of Badgers whereby they utilise the same routes forming visible pathways, their presence on the site is considered unlikely.

European Hedgehog

- 7.5.2 In relation to European Hedgehog, the habitats present offer moderate foraging and sheltering/hibernation provisions as it currently exists, with areas to hide in the dense scrubby areas. Use of the site by European Hedgehog is possible, and recommendations to prevent risk of injury to individuals of this species are provided in section 8.

7.6 Herptiles

Great Crested Newt (GCN)

- 7.6.1 In order to assess risk to GCN, a number of factors need to be considered. These include:
- Site proximity to a potential breeding pond and to any additional ponds,
 - Habitat linkage / barriers between potential breeding ponds and the site,
 - Nature and extent of available terrestrial habitat (50-100m) around the pond(s),
 - Area of site habitat loss and permanence of that loss,
 - Nature of habitat to be lost and its potential value to GCN as refuge/overwintering habitat
- 7.6.2 No ponds are present within the application site or indeed within 250m of the site boundary. One waterbody, Pond 1, is present within 500m at approximately 317m to the north. There is little to no feasible connectivity between these waterbodies and the application site due to the presence of the busy A5 road, and there is also favourable terrestrial habitat in the immediate proximity of this pond which would be favoured by GCN subject to their presence, including woodland, scrub and tussocky grassland.
- 7.6.3 As derived from the desktop assessment evidence of GCN in the locale is limited to the presence of the aforementioned Pond 1; no records of GCN were identified in the area. Research by Natural England has shown that where favourable habitats exist around GCN ponds (in this case the scrub, woodland and grassland), the vast majority of the population is likely to be contained within 100m of the breeding pond, creating a 'terrestrial sponge' effect. Taking the above into account, the presence of GCN on the site is considered highly unlikely.

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- 7.6.4 The main hypothetical worst-case impacts (subject to presence of GCN in any of the aforementioned ponds) to consider is the potential for terrestrial habitat loss (up to 0.13ha) within a range of 500 metres of a breeding pond, and harm to individual GCN. See results of the Rapid Risk Assessments below, as extracted from the Natural England 'Template for Method Statement' (Tables 7.6.1-7.6.2).

Table 7.6.1 – Rapid Risk Assessment in relation to loss of habitat

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	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)	No effect	0
Land >250m from any breeding pond(s)	0.1 – 0.5 ha lost or damaged	0.005
Individual great crested newts	No effect	0
Maximum:		0.005
Rapid risk assessment result:	GREEN: OFFENCE HIGHLY UNLIKELY	

Table 7.6.5 – Rapid Risk Assessment in relation to harm to individual GCN

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	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)	No effect	0
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	Killing or injuring newts	0.8
Maximum:		0.8
Rapid risk assessment result:	RED: OFFENCE HIGHLY LIKELY	

- 7.6.5 Based on the above rapid risk assessments, the proposed development is highly unlikely to cause an offence in relation to GCN due to terrestrial habitat loss; however should GCN be present at the site the risk of killing or injuring newts is highly likely to cause an offence. Recommendations to remove risks in relation to this species have been provided in section 8.0.

Common amphibians

- 7.6.6 Given the surrounding habitats as described the application site could be used by generalist common amphibians including Common Frog (*Rana temporaria*) and Common Toad (*Bufo bufo*), subject to their presence in the landscape.

Reptiles

- 7.6.7 In respect to reptiles, their presence on site is highly unlikely due to an absence of mosaic habitat with varying vegetation height structure, though the site does offer some limited potential as hibernation habitat. Due to this low potential for their presence, along with the lack of recent records in the area, a precautionary scheme of risk removal is prescribed in section 8.0.

8.0 Conclusions & Recommendations

Habitats

- 8.1 No UKBAP or LBAP priority habitats were encountered at the application and there are no recommendations in relation to habitats.

Vegetation

- 8.2 No species of conservation importance, or species listed under Schedule 9 of the Wildlife and Countryside Act (as amended) (1981) were identified anywhere within the site boundary, and there are no recommendations in relations to plants.
- 8.3 To provide an opportunity for Biodiversity Net Gain and to improve the value of the site for native wildlife, particularly considering the proposed plans include removal of all semi-natural habitat, a list of appropriate native species that might be incorporated into the proposed development has been supplied (see Appendix III).

Bats

- 8.4 No buildings are present within the site boundary, and no trees are present within the site boundary that host any potential for roosting bats, though the site provides moderate-high value to this taxon for commuting / foraging purposes.
- 8.5 Installation of overly harsh artificial lighting as part of any development that exceeds current levels may have a negative impact upon foraging/commuting bats in the landscape, particularly if increased light spillage occurs in areas of that are currently free from illumination. A bat-sensitive lighting plan is therefore recommended in order to avoid potential impacts to bats that may use the surrounding treelines. Several options to consider have been listed below, though the reader is referred to the Bat Conservation Lighting Guidelines for further information.

Appropriate luminaire specifications

Luminaires come in a myriad of different styles, applications and specifications which a lighting professional can help to select. The following should be considered when choosing luminaires.

All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used. LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability. Lighting should be directed to where it is needed and light spillage avoided. This can be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvres and shields to direct the light to the intended area only. Planting can also be used as a barrier

or manmade features that are required within the build can be positioned so as to form a barrier.

Predicting where the light cone and light spill will occur: There are lighting design computer programs that are widely in use which produce an image of the site in question, showing how the area will be affected by light spill when all the factors of the lighting components listed above are taken into consideration. This should be a useful tool to inform the mitigation process.

Light levels: The light should be as low as guidelines permit. If lighting is not needed in any particular area, do not light. Numerous software programmes are currently available which can be used inform lighting plans, demonstrating how lighting decisions will illuminate a site.

Please refer to the 'Landscape and urban design for bats and biodiversity' (*Gunnell et. al.*, 2012, Bat Conservation Trust)
Guidance Note 8 'Bats and Artificial Lighting' 2018, Bat Conservation Trust for further information.

Breeding Birds

- 8.6 No impacts are applicable in relation to specially protected bird species such as Barn owl, and no further recommendations need be applied in relation to WCA Schedule 1 protected species.
- 8.7 Whilst no current or historic evidence of nesting was identified anywhere within the site, the dense scrub and trees provide suitable nesting platforms which might be used by breeding birds and several common bird species were encountered during the survey. Any vegetation clearance works should therefore be undertaken outside of the breeding birds season of March-August unless it can be demonstrated by a suitable qualified, professional ecologist that breeding birds are absent beforehand.
- 8.8 It is recommended enhancement for nesting birds be incorporated into the proposed development, as per Appendix III.

Terrestrial Mammals

Badger

- 8.9 No evidence of badger was identified anywhere within the survey boundary, their presence on the site is considered unlikely.

European Hedgehog

- 8.10 Due to the presence of scrubby habitat with piled materials which provide abundant shelter opportunities, and grassland which provides foraging opportunities, presence of European Hedgehog on the site is considered possible. It is therefore recommended that an appropriate Method Statement is created by a suitably qualified Ecologist/Ecological Clerk of Works (ECOW), detailing a list of Reasonable Avoidance Measures (RAMs) to prevent risk to this species.
- 8.11 To help the development achieve a biodiversity net gain on site, suggestions in relation to hedgehog have been provided within Appendix III.

Herptiles

- 8.12 Whilst there are no ponds within 250m of the site and the single pond within 500m is separated from the site by a busy road, it is recommended as a precautionary measure that GCN and other more robust amphibian species such as Common Frog (*Rana temporaria*) are included within the RAMs recommended within section 8.10. These RAMs in combination with supervision by an ECoW will prevent risk to individual GCN, and thus prevent an offence being committed.

The applicant and all contractors should be aware that in the event that if at any stage GCN are encountered during works, or at any other stage of the work programme, works would be required to immediately cease and an Ecologist made aware as to provide further guidance in this situation.

In the event that GCN or their habitat would be directly impacted upon, including disturbance, an EPSML to legally proceed with the development may be required following detailed further presence/absence surveys.

- 8.15 Due to the presence of historical reptile records in proximity to the site along with the suitable hibernation habitat within the survey area, it is recommended that reptiles are included within the RAMs recommended within section 8.10.

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Appendix I: Site Photographs



Plate 1: View looking down the slope to the north from Yr Ochr



Plate 2: View looking up at the site from Cwmalis Road, with the mature Sycamore visible



Plate 3: Character of the survey area, with dense understory and ground flora



Plate 4: Character of the survey area, with dense understory and ground flora



Plate 5: Character of the survey area, with dense understory and ground flora

Appendix II: Site-Specific Botanical Species List

Each species recorded was given an abundance value according to the standard DAFOR scale, where:

- D = Dominant
- A = Abundant
- F = Frequent
- Occasional
- R = Rare

Taxon	Common Name	Scientific Name	DAFOR
Anthophyta (Flowering plants)	Ash	<i>Fraxinus excelsior</i>	F
	Bramble	<i>Rubus fruticosus</i> agg.	A
	Broad-leaved Dock	<i>Rumex obtusifolius</i>	O
	Cleavers	<i>Galium aparine</i>	F
	Common Ivy	<i>Hedera helix</i>	A
	Common Nettle	<i>Urtica dioica</i>	F
	Cow Parsley	<i>Anthriscus sylvestris</i>	O
	Dog's Mercury	<i>Mercurialis perennis</i>	F
	Herb Robert	<i>Geranium robertum</i>	O
	Lords-and-ladies	<i>Arum maculatum</i>	O
	Red Campion	<i>Silene dioica</i>	O
	Ribwort Plantain	<i>Plantago lanceolata</i>	O
	Sycamore	<i>Acer pseudoplatanus</i>	O
	Wych Elm	<i>Ulmus glabra</i>	O

Appendix III: Biodiversity Enhancement

Proposed - Native Landscaping

A series of trees, woody shrubs, climbers, herbaceous plants and ferns have been given within the table below which are suitable for incorporation into the proposed development at the application site; the list of plants given below are readily commercially available.

	Common Name	Scientific Name	Planting Preference
Ferns	Male Fern	<i>Dryopteris filix-mas</i>	Semi-shade or shaded
	Soft Shied-fern	<i>Polystichum setiferum</i>	Semi-shade or shaded
	Maidenhair Fern	<i>Adiantum capillus-veneris</i>	Suitable for rockeries / walled gardens
	Royal Fern	<i>Osmunda regalis</i>	Full sun in moist-damp areas
Herbaceous plants	Bloody Crane's-bill	<i>Geranium sanguineum</i>	Dry soils - suitable for rockeries
	Columbine	<i>Aquilegia vulgaris</i>	Semi-shade or open areas
	English Bluebell	<i>Hyacinthoides non-scripta</i>	Moist soils in semi-shade or open areas
	Giant Bellflower	<i>Campanula latifolia</i>	Semi-shade or open areas
	Greater Knapweed	<i>Centaurea scabiosa</i>	Dry-moist soils. Suitable for borders
	Greater Woodrush	<i>Luzula sylvatica</i>	Moist soils in semi-shade or open areas
	Meadow Crane's-bill	<i>Geranium pratense</i>	Humid-moist soils. Suitable for borders
	Musk Mallow	<i>Malva moschata</i>	Dry-moist soils. Suitable for borders and rockeries
	Sea Campion	<i>Silene uniflora</i>	Dry soils - suitable for rockeries
	Stinking Hellebore	<i>Helleborus foetidus</i>	Semi-shade or open areas
Climbers	Honeysuckle	<i>Lonicera periclymenum</i>	Dry-moist soils
	Hops	<i>Humulus lupulus</i>	Dry-moist soils
	Ivy	<i>Hedera helix</i>	Dry-moist soils
	Sweet-briar	<i>Rosa rubiginosa</i>	Dry-moist soils
Woody Shrubs	Dogwood	<i>Cornus sanguinea</i>	-
	Guelder Rose	<i>Viburnum opulus</i>	-
	Hawthorn	<i>Crataegus monogyna</i>	-
	Hazel	<i>Corylus avellana</i>	-
	Holly	<i>Ilex aquifolium</i>	-
Trees	Alder Buckthorn	<i>Frangula alnus</i>	-
	Osier	<i>Salix viminalis</i>	-
	Pedunculate Oak	<i>Quercus robur</i>	-
	Purple Willow	<i>Salix purpurea</i>	-
	Rowan	<i>Sorbus aucuparia</i>	-
	Silver Birch	<i>Betula pendula</i>	-
	Wild Cherry	<i>Prunus avium</i>	-
	Wych Elm	<i>Ulmus glabra</i>	-

Enhancing a development site for Bats

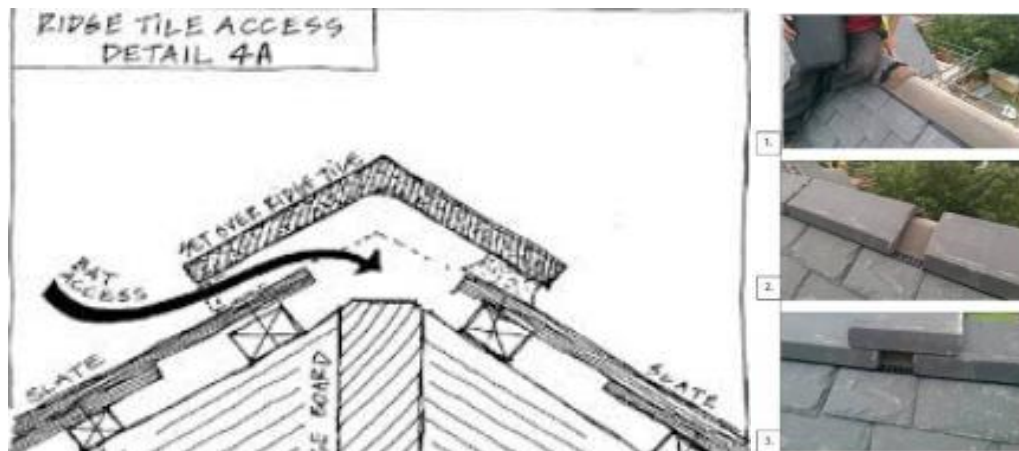
Integrated bat box

The Habibat Bat Box is a solid box made of insulating concrete with internal roosting space. The box blends seamlessly into brick-built properties and may be incorporated into the fabric of buildings, being best placed on gable elevations.



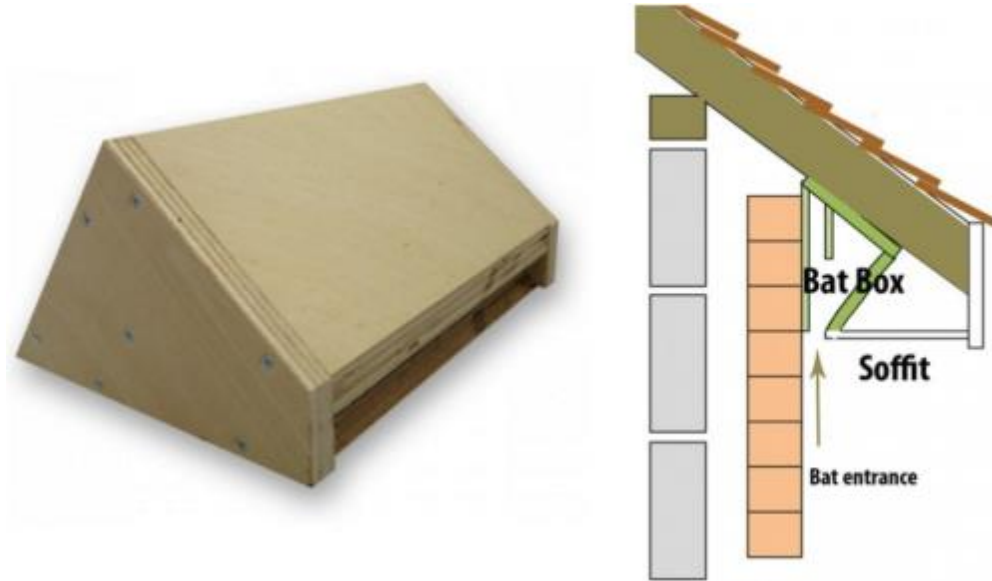
Ridge access

Where appropriated, ridge tile access should be made with the incorporation of traditional Bitumen 1F underfelt immediately beneath ridge tiles. Breathable BRM membrane can cause significant problems where bats are in contact with it, whereby their fine claws become entangled within the fibres of the membrane, entrapping and killing bats.



Soffit access

Where soffits are instated at gable elevations, roost provision may be instated in the form of a soffit bat box with internal roosting space.



Externally fitted boxes

A large number of externally fitted box models for bats exist for buildings and trees. Suitable models for both buildings and trees may include the Eco Kent Bat Box.



Enhancing a development site for Breeding Birds

This traditional design has proved to be highly effective in attracting robins, as well as other small species such as black redstart, spotted flycatcher and wren. It is designed to be installed on the walls of houses, barns, garden sheds or other buildings and should be hung so that the entrance is to one side (at an angle of 90° to the wall). The front panel can be easily removed for cleaning.

This type of box should not be made conspicuous on a tree or bush because small predators can enter through the unprotected opening. By hanging on a wall, predators won't be able to reach the box. Alternatively hide the box in ivy, honeysuckle or other climbing plants.

See - www.nhbs.com/2h-schwegler-robin-box



Enhancing a development site for Invertebrates

Bee bricks

The Bee Brick can be used in place of a standard brick or block in construction to create habitat for solitary bees. Alternatively, it can be used as a standalone bee house in your garden or wild patch. It will provide much needed nesting space for solitary bee species such as red mason bees and leafcutter bees, both of which are non-aggressive.

Each Bee Brick contains cavities in which solitary bees can lay their eggs before sealing the entrance with mud and chewed-up vegetation. The offspring will emerge the following spring and the cycle will begin again. Each cavity goes part way into the brick, which is solid at the back. Bee Bricks should be placed in a warm sunny spot on a south-facing wall at a minimum height of 1m, with no vegetation obstructing the holes. It is highly recommended that bee-friendly plants should be located nearby so that the bees using the bricks have food, otherwise it is unlikely that the brick will be used.

Available in a choice of four colours: white grey, dark grey, yellow and red.

Specification

- * Material: Concrete
- * Origin: Cornwall, UK
- * Dimensions: W 215mm x D 105mm x H 65mm
- * Weight: 2.9kg
- * Colours: White grey, yellow, dark grey and red



Enhancing a development site for Hedgehogs

Hedgehog Homes

As a means of enhancement and preserving local biodiversity, it is recommended that a 'Hedgehog home' be integrated into the scheme, placed along the site boundary at the base of a hedgerow. This will provide a receptor area for any Hedgehogs incidentally discovered/affected during works and promote local conservation of this species. Typical design suggestions can be found below, available online from reputable retailers.



