

Preliminary Ecological Appraisal

March 2023

**Cae Ffynnon,
Llan-y-Pwll
Holt
Wrexham
LL13 9SD**

National Grid Ref: SJ37005186



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Preliminary Ecological Appraisal

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This report aims to provide general advice on ecological constraints associated with any development of the site and includes recommendations for further survey; it is not intended that this report should be submitted with a planning application for development of the site, unless supported by the results of further surveys and a detailed assessment of the effects of the proposed development.

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Executive Summary

As part of a planning application at Cae Ffynnon in Llan-y-Pwll, Wrexham (termed as 'the Site' and/or 'application site' in this report), Tyrer Ecological Consultants Ltd were commissioned to carry out a Preliminary Ecological Appraisal (PEA) in March 2023. The PEA was commissioned by Blueprint Architectural Services; proposals are for the erection of a new stables block.

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

Great crested newt: In respect of herpetofauna, the combined desktop and field-based results suggest there is a negligible scale of risk associated with the proposals concerning great crested newts (*Triturus cristatus*), common amphibians or reptiles and no further surveys or specific recommendations are considered necessary at this time. However, it is understood the local planning authority on the advice of their ecological advisors have requested Reasonable avoidance measures (RAMs) be carried out under the supervision and guidance of a suitably qualified ecologist.

*Reasonable avoidance measures for amphibians have been provided in **Appendix III**.*

Birds: In relation to more common birds, the stables adjacent to the application site likely support house sparrow (*Passer domesticus*) and swallows (*Hirundo rustica*) for breeding. In addition, trees and woody vegetation adjacent to the application site provides viable nesting opportunities for smaller birds; as breeding birds are protected when breeding / when at the nest, timings implications are applicable to avoid disturbing, displacing (albeit temporary) or harming breeding birds and risk breaching legislation.

It is recommended that no removal of, or works to any features that may be used by breeding birds, shall take place during the main bird breeding season (1st March to 31st August inclusive), unless a competent Ecologist has undertaken a careful, detailed check for active birds' nests immediately before any works and provided confirmation that no birds will be displaced or harmed and/or that there are appropriate measures in place to protect nesting bird interest on site. Appropriate measures - where/if active nests are located by the Ecologist - that may affect them would have to be delayed until the young have fledged, and the nest has been abandoned naturally. This can be aided, for example, via implementation of appropriate buffer zone(s) around the nest site (typically 5-10 metres) in which no disturbance is permitted until the nest is no longer in use. This would have to be coordinated through the expert judgement of the professional ecologist and is typically species dependant.

Enhancement: In considering PPW (2021) which requires developments to achieve a Net Benefit for Biodiversity (NBB), enhancement ideas that consider the specific scale and nature of the proposals in accordance with the principles of 'Biodiversity Net Gain: Good practice principles for development' (CIEEM *et. al.*, 2019), are presented in **Appendix IV**.

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1.0 Introduction & Scope

- 1.1 As part of a planning application at Cae Ffynnon in Llan-y-Pwll, Wrexham (termed as ‘the Site’ and/or ‘application site’ in this report), Tyrer Ecological Consultants Ltd were commissioned to carry out a Preliminary Ecological Appraisal (PEA) in March 2023.
- 1.2 The PEA was commissioned by Blueprint Architectural Services; proposals are for the erection of a new stables block (see **Figure 1.1**).

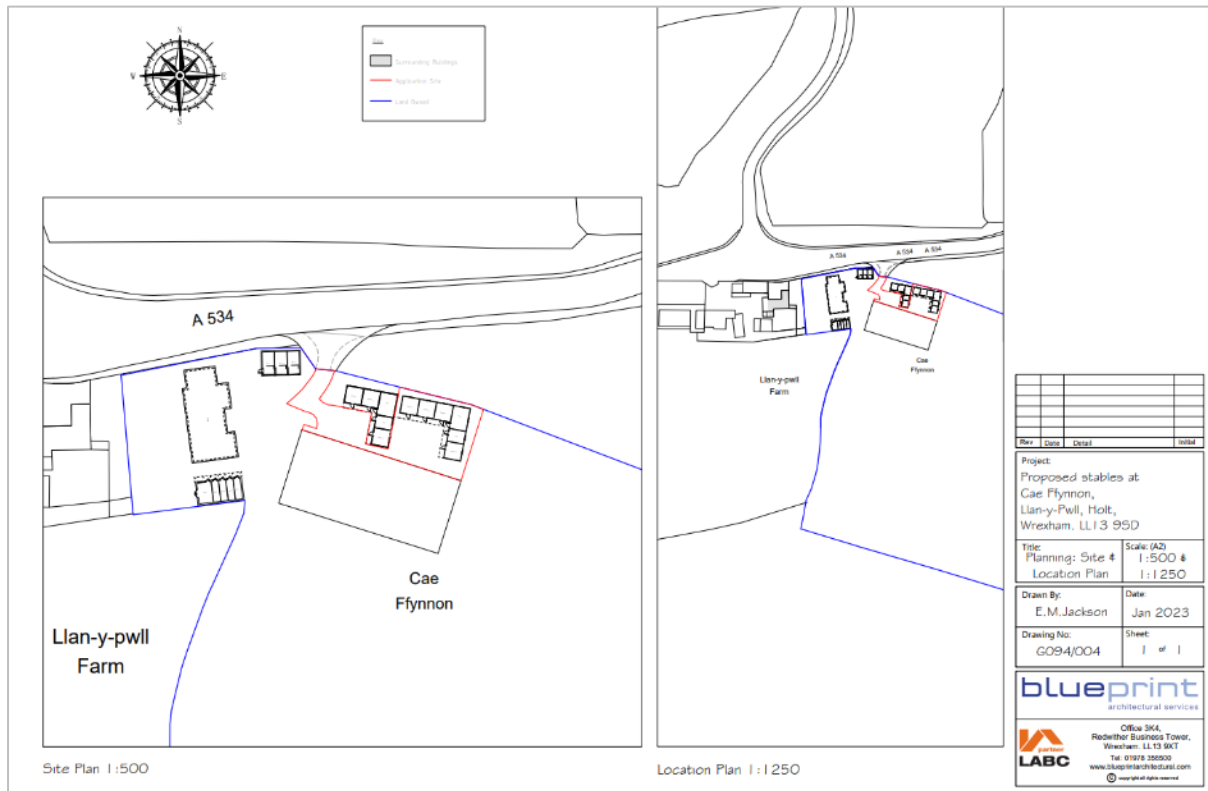


Figure 1.1 – Site & Location Plan (Drawing No: G094/004)

- 1.3 A similar stables block to that which is proposed was erected as part of a previous planning consent immediately next to the application site alongside a menage (Wrexham County Borough Council Reference: P/2017/0133).
- 1.4 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 habitats or species are, or may be present, that could be affected by the proposals for which the application seeks consent.
- 1.5 The PEA was carried out in accordance with the ‘*Guidelines for Preliminary Ecological Appraisal, 2nd Edition*’ (CIEEM, 2017) and all associated ‘*CIEEM Competencies for Species Survey (CSS)*’, whilst this report has been presented in accordance with the British Standard 42020:2013 *Biodiversity. Code of practice for planning and development*.

Aims & Objectives

- 1.6 The appraisal aims to ascertain baseline nature of the Site 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 and present baseline ecological information (as necessary) within a suitable report,
- Identify, measure and map habitats using UK Habitat Classification – Habitat Definitions Version 1.1 (2020),
- 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),
- Identify measures likely to be required in line with the mitigation hierarchy (i.e. impact avoidance > minimisation > mitigation > compensation),
- Identify additional survey requirements,
- Aim to achieve no ‘net loss’,
- Identify 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),
- Set out any requirements for post-development monitoring, management, or other commitments, and how they can be secured, where required.

1.7 As a functioning component of this specific ecological appraisal:

- Habitats were identified, measured and mapped using the UK Habitat Classification – Habitat Definitions Version 1.1 (2020);
- Buildings and Trees were subject to preliminary roost assessment (PRA) for Bats and scored against the bat roost suitability parameters defined in the Bat Conservation Trust - Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016) and British Standard 8596:2015 *Surveying for bats in trees and woodland*.

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

1.9 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/communities/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.

1.10 If protected species were subsequently found either during appraisal or 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.

- 1.11 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.
- 1.12 Protected/priority species omitted from this report have been discounted due to negating 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 impact the species or encroach on areas where the species may be present.

2.0 Legislation & Policy

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

- The Environment (Wales) Act (2016),
- Biodiversity Net Gain. Good practice principles for development (*CIEEM et. al.*, 2019),
- BS 42020:2013 Biodiversity – Code of Practice for Planning and Development,
- Conservation of Habitats and Species Regulations (amendment) (2019) (EU Exit),
- Countryside Rights of Way (CRoW) Act (2000),
- Natural Environment and Rural Communities (NERC) Act (2006),
- The Hedgerow Regulations (1997),
- Town and Country Planning Act (1990),
- Wild Mammals Protection Act (1996),
- Wildlife and Countryside Act (WCA) (1981) (as amended).

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 (e.g. bats), 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	Relevant Legislation	Level of Protection
Badger	Protection of Badgers Act (1992), Wildlife and Countryside Act (1981) (as amended)	Illegal to wilfully kill, injure or take a badger (or attempt to do so). Cruelly ill-eradicate a badger. Dig for a badger. Intentionally or recklessly damage or destroy a badger sett, or obstruct access to it. Cause a dog to enter a badger sett. Disturb a badger when it is occupying a sett.
Bats	CRoW Act (2000) Conservation of Habitats and Species Regulations (2019) (EU Exit) Wildlife and Countryside Act (1981) (as amended)	All British bats and their roosts are afforded full protection from damage/destruction and bats may not be injured/killed/taken at any life stage. Once identified, roosts are protected whether the bat is in occupation or not.

Birds	CRoW Act (2000) Wildlife and Countryside Act (1981) (as amended)	All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependant young are protected. Birds listed on Schedule 1 Wildlife & Countryside Act (1981) (as amended) are afforded a greater level of protection.
Great Crested Newt (GCN)	CRoW Act (2000) Conservation of Habitats and Species Regulations (2019) (EU Exit) Wildlife and Countryside Act (1981) (as amended)	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 as invasive, including Japanese Knotweed (<i>Reynoutria japonica</i>) and Himalayan Balsam (<i>Impatiens glandulifera</i>), for example, carry notoriety regarding development. 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)	All native reptile species have some degree of protection in the UK, through section 8(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).

Relevant Policy

- 2.4 Planning Policy Wales (PPW) 11th Edition (2021) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales. PPW, the TANs, MTANs and policy clarification letters comprise national planning policy.
- 2.5 PPW and the National Development Framework (published as Future Wales – the National Plan 2040) set out how the planning system at a national, regional and local level can assist in delivering these requirements through Strategic Development Plans (SDPs) and Local Development Plans (LDPs).
- 2.6 PPW (2021) states:

“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. Planning authorities should advise anyone submitting a planning application that they must conform with any statutory species protection provisions affecting the site, and potentially the surrounding area, concerned. An ecological survey to confirm whether a protected species is present and an assessment of the likely impact of the development on a protected species may be required in order to inform the development management process. It is considered best practice that screening to determine the presence of protected species should be carried out by a competent ecologist on the basis of data provided by the relevant Local Environmental Record Centre.”

- 2.7 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.
- 2.8 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.
- 2.9 The Environment (Wales) Act 2016 (“the Act”) - requires local planning authorities to have regard to area statements in the development of Local Development Plans. The Act introduced an enhanced biodiversity and resilience of ecosystems duty (Section 6 Duty). This duty applies to public authorities in the exercise of their functions in relation to Wales and will help maximise contributions to achieving the well-being goals. The Nature Recovery Action Plan supports this legislative requirement to reverse the decline in biodiversity, address the underlying causes of biodiversity loss by putting nature at the heart of decision-making and increasing the resilience of ecosystems by taking specific action focused around objectives for habitats and species.

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.”

- 2.10 PPW (2021) also requires developments to achieve a Net Benefit for Biodiversity (NBB):

*“Planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions. This means development should not cause any significant loss of habitats or populations of species, locally or nationally and must provide a **net benefit for biodiversity**. In doing so planning authorities must also take account of and promote the resilience of ecosystems, in particular the follow aspects:*

- *diversity between and within ecosystems;*
- *the connections between and within ecosystems;*
- *the scale of ecosystems;*
- *the condition of ecosystems including their structure and functioning; and*
- *the adaptability of ecosystems.”*

- 2.11 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.
- 2.12 Wrexham Borough Council prepared a plan namely the 'Wrexham Unitary Development Plan (1996 – 2011)', which was formally adopted in February 2005 and supersedes any previous development plans for the area. A new plan, the 'Wrexham Local Development Plan 2 (2013 - 2028)', which will replace the current adopted plan, is currently under review. Until this new plan is adopted, the Wrexham Unitary Development Plan remains in effect.
- 2.13 Policy EC6 of the Wrexham Unitary Development Plan mirrors these statements within PPW 2021 and goes on to state the following:

“Development either within or close to sites of biodiversity interest will only be permitted where it can be clearly demonstrated that the need for the development outweighs the need to safeguard the intrinsic nature conservation value of the site. Where such development is permitted, damage should be kept to a minimum, and compensatory measures should be provided. Measures to improve the biodiversity value of sites and enhance their natural conservation interest and landscape quality including the establishment of local nature reserves will be supported.”

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 Section 7 of the Environment Act (Wales) places a duty on Welsh Ministers to publish, review and revise lists of types of habitats and species in Wales which they consider are of key significance to sustain and improve biodiversity. The Welsh Ministers must also take all reasonable steps to maintain and enhance the habitats published in these lists, and encourage others to take such steps. Section 7 of 'The Act' alongside the UK Biodiversity Action Plan (UKBAP) provided a statutory basis for lists of habitats and species of national conservation importance - now transposed under section 41 (s.41) of the Natural Environment Rural Communities Act 2006 (NERC Act).
- 3.3 The following Priority habitats and species are considered relevant to the survey area:

Habitats

- Hedgerows.

Species

- Bats: barbastelle (*Barbastella barbastellus*), Bechstein's bat (*Myotis bechsteinii*), noctule (*Nyctalus noctula*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared bat (*Plecotus auritus*), lesser horseshoe (*Rhinolophus hipposideros*), for e.g.,
- Bird species that include: kestrel (*Falco tinnunculus*), house sparrow (*Passer domesticus*), lesser redpoll (*Carduelis cabaret*), dunnoek (*Prunella modularis*), song thrush (*Turdus philomelus*), bullfinch (*Pyrrhula pyrrhula*) for e.g.,
- Mammals that include: European hedgehog (*Erinaceus europaeus*), brown hare (*Lepus europaeus*) for e.g.,
- Herpetofauna that include: great crested newt (*Triturus cristatus*), grass snake (*Natrix helvetica*), slow-worm (*Anguis fragilis*), common toad (*Bufo bufo*), common lizard (*Zootoca vivipara*) for e.g.,
- Priority botanical communities and species in the geographical area.

4.0 Methodology

Desktop Study

4.1 A desk study was undertaken to identify existing information on the presence of designated sites, protected and notable species and habitats within proximity as follows:

- Statutory designated sites for nature conservation within 5km; and,
- Non-statutory designated sites for nature conservation within 2km.

4.2 The following key sources were consulted:

- Natural Resources Wales and Joint Nature Conservation Committee (JNCC) websites;
- The Multi Agency Geographic Information for the Countryside (MAGIC) website;
- The 'Lle a Geo-Portal for Wales' and DataMapWales website.

4.3 Reference was also made to Google Earth Pro and Ordnance Survey (OS) maps of the local area and online aerial images (www.google.co.uk/maps) in order to determine any features of nature conservation interest in the wider area.

4.4 A commercial data request to the Local Environment Records Centre serving the area has not been sourced at this time:

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) also 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."

- 4.5 As the proposals are small scale and primary impacts in relation to Site-associated habitats and protected species can be ascertained using freely available information and from the field work, the exemptions in the guidance are considered applicable in good practice, as such it is considered unnecessary to commission a commercial data request at this time as enough information has been obtained using freely available web sources during desk study and from the field study visit.
- 4.6 If a data search is considered necessary by the Local Authority, or environmental 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

- 4.7 A daytime preliminary ecological appraisal was conducted on the 14th March 2023 in dry, clear conditions with clear sun and 15% cloud cover (4°C), average wind 1/12 (Beaufort scale) by the following qualified ecologist (**Table 4.1**).

Table 4.1 - Surveyor credentials

Name	Description of most relevant credentials
Mr. M. Pritchard ACIEEM (Senior Ecologist)	• Six years professional Ecological consultant experience & extensive training in cross habitat/species ecology; • Relevant Degree: FdSc (Countryside, Conservation & Recreational Management); • Licenced in Bats: (2020-5039-CLS-CLS) (Class 1) and accredited agent on the (Class 2) Natural England bat licence of Mrs. K. Wilding (CLS-14227); • Licenced for Great Crested Newts in Wales: S089281/1. • Licenced for Great Crested Newt: CL08 (Great Crested Newt Survey Level 1) - 2018-34062-CLS-CLS (England); • Licensed for Sand Lizard & Natterjack Toad (2022-62891-SCI-SCI); • FISC Level - 3 (2019) (Botanical); • Trained in use of the MoRPH River assessment; • Trained in UK Habs / BNG condition assessment.

Floristic assessment

- 4.8 The survey followed the UK Habitat Classification Version 1.1 (Butcher, et.al., 2020) method with reference to the Joint Nature Conservation Committee (JNCC) Phase 1 Habitat Methodology standards (JNCC, 2010) and reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) Technical Guidance Series “*Guidelines for Preliminary Ecological Appraisal, 2nd Edition*” (CIEEM, 2017)
- 4.9 During a 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.

- 4.10 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 value on a geographical scale which is adopted on a site-to-site basis (see **Figure 4.1**).
- 4.11 The Site 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). For botanical species list compiled, see **Appendix II**.

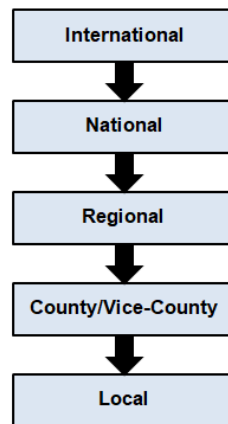


Figure 4.1 – Geographic Frame of Reference entailing degrees of conservation importance

Faunal assessment

- 4.12 During a site walkover the identification and/or evidence of priority fauna encountered was documented whilst in tandem the area was assessed for the potential to support the priority species in section 3.0. The walkover also aimed to identify any ephemeral pools or unmapped waterbodies.

Bats

- 4.13 A building was 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/inside 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 other buildings in wider curtilage were assessed.
- 4.14 Trees were 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.
- 4.15 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

4.16 Factors typically 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 and types of roost potential, if present (i.e. - maternity, hibernation, transition).

Birds

4.17 The Site was inspected for evidence of nesting and suitability for relevant avian species including breeding, passage, overwintering use. Bird species observed and heard were recorded, and a search was made for nest material, or areas suitable for nesting - this can take the form of searching structures, woody vegetation, semi-aquatic vegetation such as reeds and/or the ground. Elevations were inspected for evidence of birds that show a high dependency upon built structures, many of which are in a state of decline. These might include the following species for example:

- Starling: Birds of Conservation Concern (BoCC) red status
- House sparrow: BoCC red status
- House martin (*Delichon urbica*): BoCC red status
- Swift (*Apus apus*): BoCC red status

4.18 Additional to the Site's capacity to support generally common species for breeding, the area was also subject to an assessment for wider capacity to support species with extra protection

under Schedule 1 of the Wildlife & Countryside Act (WCA) (1981) (as amended) for example Barn owl (*Tyto alba*) and other Sch.1 (WCA) listed species.

Other terrestrial mammals

- 4.19 The walkover included a search for field signs of badger (*Meles meles*) which includes signs of activity such as prints, hairs, digging, setts, 'runs' leading to and from a sett and the existence of latrines or 'snuffle' holes where badgers have foraged in the ground.
- 4.20 The Site was also assessed for the suitability of European hedgehog and brown hare.

Herpetofauna

- 4.21 The terrestrial value of the Site was assessed in relation to amphibian species shelter, hibernation, foraging values.
- 4.22 During desktop assessment a 250 metres radial 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: *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.*

- 4.23 In order to quantify risks to GCN in a PEA, a range of factors need to be considered (see below and **Table 4.2**):
- Presence of ponds on site, and impacts to those ponds,
 - Site proximity to any additional ponds within 250-500m,
 - Pond quality (suitable for breeding, or not),
 - Nature, extent, and connectivity of available terrestrial habitat around the pond(s), considering core, intermediate and distant ranges, to be affected by works,
 - Presence of significant barriers between ponds and site,
 - Area of site habitat loss and permanence of that loss.

Table 4.2 - Factors that can increase/decrease risk of committing an offence

Increases risk to GCN	Decreases risk to GCN
large population size, high local pond density, good terrestrial habitat, low pre-existing habitat fragmentation, large development footprint, long construction period	small population size, low local pond density, poor terrestrial habitat, substantial pre-existing dispersal barriers, small development footprint, short construction period

- 4.24 The Site and its surroundings were assessed for suitability for use by reptiles known to the county; during the survey particular attention was paid to features that could be used as basking areas (e.g. south-facing slopes), hibernation sites (e.g. banks, walls, leaf litter, 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 use a variety of habitats from woodland glades to heaths, walls and pastures, as well as brownfield sites.

- slow-worms use similar habitats to common lizards, and are often found in rank grassland, gardens and derelict land;
- grass snakes have broadly similar requirements to common lizards but with a greater reliance on ponds and wetlands, where they prey on amphibians.

4.25 In assessment of a site for reptiles several important habitat characteristics are considered, outlined in **Table 4.3 below**, as derived from the *Reptile Habitat Management Handbook* (Edgar, 2010).

Table 4.3 – 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

4.26 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.

4.27 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 the surveyor and author Mr. Pritchard.

5.0 Limitations

- 5.1 This report does not contain a comprehensive list entailing the totality of botanical taxa on Site. Though the list in **Appendix II** represents the Site a PEA is not a concentrated effort to gather full botanical information. Many plant species are only evident at certain times of the year, in addition the presence of annuals/biannual species may not be present in March; consequently, it is possible some plant species may have gone undetected, and a precautionary approach has been considered in the conclusions and recommendations.
- 5.2 No access issues arose and the surveyor was able to carry out a robust assessment of all areas proposed to be directly affected by development (i.e. construction related). In considering the limitations given, no significant constraints were experienced that might adversely influence the results, conclusions, and recommendations of this report which have been provided in accordance with best practice guidance.

6.0 Desk Study Results

- 6.1 The application site is located off Sandy Lane via the A534 by-pass in Llan-y-Pwll, approximately 3.75 kilometres north-east of Wrexham city centre.

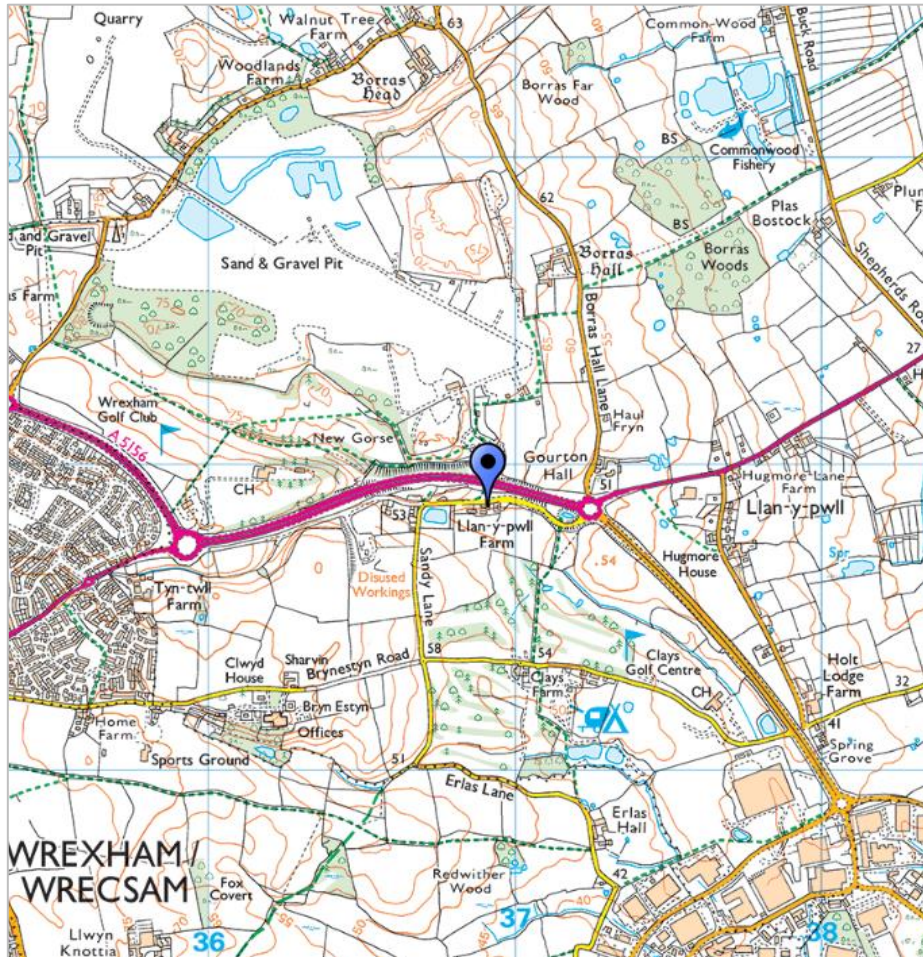


Figure 6.1 – Location of the Site within the context of the wider setting (OS Maps 2023)

- 6.2 The application site is formed of unsealed hardstanding (gravels) with a modified grassy bank including herbs and ruderals to the north boundary preceding a fence and linear broadleaf treeline. Immediately west of the application site is a stables block of similar construct to that which is proposed, erected as part of a previous planning consent (Wrexham County Borough Council Reference: P/2017/0133), alongside a menage to the south. The wider 10-hectare site features open grazing pastures, hedgerows and additional structures including kennels and a dwelling.
- 6.3 Extending environs include roadside verges and treelines to the north which flank the nearby Sandy Lane, hedgerows to the south which connect directly to a golf course, arable land to the east and brownfield land to the south-west which features a matrix of woodland and grassland habitats.
- 6.4 There are three identified ponds within 250m of the site, one of which is located on the opposite side of Sandy Lane by the A534 at 135 metres east, the second is a large water body at 195 metres west and the third is at 245 metres south-east within a golf course (see **Figure 6.2**).

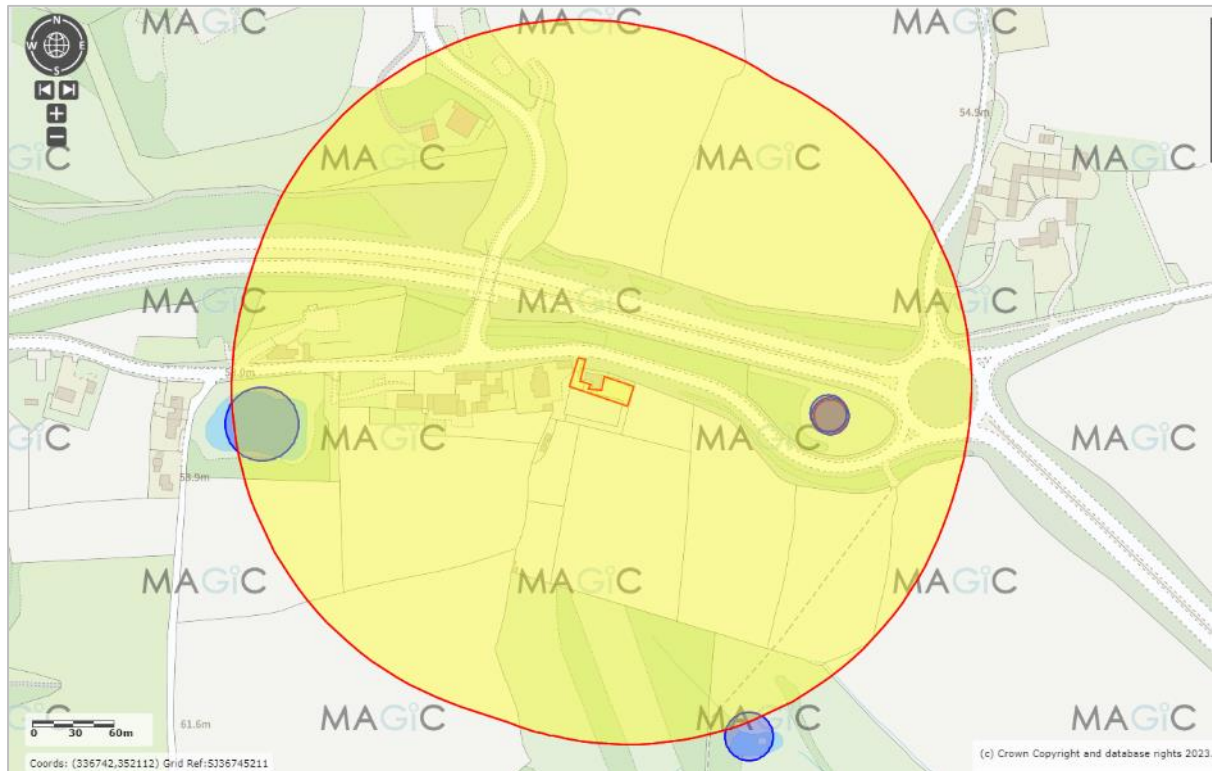


Figure 6.2 – Location of three ponds within 250 metres of the site (MAGIC Maps 2023)

- 6.5 Site surrounding environs offer a moderate diversity of terrestrial and freshwater habitat types with favourable habitat inter-connectivity given the presence of treelines, hedgerows and grasslands; it should be stated the nearby A534 to the north presents a significant dispersal barrier to terrestrial animals. The protected species most typically associated with the local habitat types described are bats, namely the common pipistrelle, a species typically associated with roosting in buildings in both rural and urban settings.

NB: *Where quality habitat is present close to buildings then the percentage use of those buildings, by bats, increases given that roost opportunities are available and vice versa.*

- 6.6 There are no statutory designated sites within 2.0 kilometres of the site.
- 6.7 Tyrer Ecological have carried out protected species surveys within the surrounding 2.0 kilometres which yielded the following contextual information, all of which have been digitised and sent to the local record centre serving the area as part of class licence obligations:
- 980 metres south-west / 2015-2019, Erlas House – significant roost site for lesser horseshoe, brown long-eared, common pipistrelle and soprano pipistrelle.

7.0 Field Survey Results

7.1 Habitat survey

- 7.1.1 See **Table 7.1** (below) for baseline habitat information and descriptions on Site, it does not describe buildings and habitats in the wider curtilage of the site owner. Refer to **Appendix I** for any supporting imagery; scientific names for species named in **Table 7.1** are given in **Appendix II**.
- 7.1.2 Refer to **Appendix V - UK Habitats Map** for the location of habitats & Target Notes (TN).

Table 7.1 – UK Habitat codes and descriptions with Target Notes

Habitat code	Description
g4 – modified grassland	A narrow slope of grassland embankment is present along the north boundary of the application site; it is bund like sloped to approximately 45 degrees south-facing angle but features only scattered grass with graminoids noted including Yorkshire-fog and annual meadow-grass and sporadic forbs including herb-Robert, wavy bittercress, shepherd's-purse, groundsel, red dead-nettle, common field-speedwell and stinging nettle.
u1b – developed land; sealed surface	Concrete footing is lay in the centre of the site next to the adjacent stables.
u1b6 – other developed land	Gravels form most of the hardstanding yard space.
Target Notes	1 – Rubble/construction aggregates

7.2 Vegetation

Notable species

- 7.2.1 No priority species or species of conservation importance based on rarity or status were identified during the Site walkover; all species encountered were considered common for the county.

Invasive non-native species

- 7.2.3 No species listed as 'invasive' under Schedule 9 (Part II) of the Wildlife & Countryside Act (1981) (as amended) were identified upon assessment of the survey area.

7.3 Bats

- 7.3.1 There are no buildings on the application site itself, however adjacent to the west boundary is a newly constructed 'L-shaped' single-storey stables block of similar construction to that which is being proposed as part of the new planning application. Formed of brick and breezeblock with a corrugate material loosely bolted in panels over the roof, its east elevation faces the application site and it is fitted loose at the gable verge and wall plate that were clearly wide enough to be accessible by small birds but are likely too wide to provide any crevice value for bats. The inside of the stables was inspected out of best practice and it was found to be

reasonably spacious in its various compartments that shelter animals, was naturally lit, draughty and free of any crevices, wall features or other means of roost suitability. No evidence of bats was located anywhere inside the building and it can be reasonably ascertained to have never been used for roost use in the short time it has been constructed given the absence of bat droppings. The stables are understood to be retained / unaffected as part of the proposals.

- 7.3.2 No trees are present on the application site and none of the trees just off the north boundary fence line were considered to offer any bat roost suitability. The treeline is likely to provide a valuable foraging and commuting resource for bats in the landscape.

7.4 Birds

- 7.4.1 In relation to WCA Sch.1 listed species such as barn owl the recently constructed stables adjacent to the application site are regularly accessed by site persons creating a disturbance regime, the various compartments have no discrete voids or upper floors/mezzanines, and it is generally unsuitable as a means of providing a potential breeding environment for barn owls or other WCA Sch.1 listed species. The application site itself is unsuitable in any way shape or form for barn owls, though the wider curtilage is suitable to provide hunting value.

- 7.4.2 In relation to more common species the application site itself is unsuitable as means of breeding habitat; the treeline just off site to the north boundary provides nesting habitat for smaller birds with a dunnock sighted alongside small numbers of house sparrow, and, the stables adjacent to the application site contained x2 swallow (*Hirundo rustica*) nest cups confirming the building is used for breeding by this summer visitor.

7.5 Other terrestrial mammals

- 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, and proposals are unlikely to impact this species despite the wider environment providing a hospitable environment.
- 7.5.2 No field signs or sightings of hedgehog were encountered though this species is nocturnal and may be present in the locale based on the habitat types and connectivity to wider more valuable habitat. The proposals are unlikely to impact this species.

7.6 Herpetofauna

- 7.6.1 No ponds are present on Site and the habitats to be affected by development (hardstanding, minor strip of sloped grassland) are not considered to be of any value to great crested newt or other amphibians. There is however a range of construction aggregate materials lay around the gravelled yard and at the foot of the grassland slope, such as rubble piles, strips of bitumen, loose bricks and various pieces of timber, that amphibians could use for shelter even hibernation, subject to presence, on commute between more favourable habitat.
- 7.6.2 Given the proximity of the Site to three ponds (covered in section 6.0) there is a very low risk of disturbance should amphibians be sheltering below any refuge opportunities in the yard space during clearance work, however given the small size of the Site and its low interest value versus the surrounding wider environment the probability of this occurring is highly unlikely.
- 7.6.3 Reptiles are unlikely to be present in any capacity based on unsuitable habitat and impacts to this group of animals from the proposed development can be reasonably discounted.

8.0 Conclusions & Recommendations

Designated sites

- 8.1 Tyrer Ecological find it unlikely the proposals pose any risks to statutory designated sites or their respective qualifying features to warrant a Habitat Regulations Assessment (HRA).

Habitats & vegetation

- 8.2 No priority habitats exist on site; adjacent treelines should be protected in-line with BS 5837:2012 *Trees in relation to design, demolition and construction*.
- 8.3 In addition, standard environmental protection and pollution prevention measures should be adopted throughout the construction phase.
- 8.4 No impacts are anticipated in relation to any priority vegetative species or communities at this time to warrant any further surveys or mitigation measures.
- 8.5 No invasive non-native species listed under Schedule 9 (Part II) of the Wildlife & Countryside Act (1981) were identified upon assessment of the Site to warrant any further measures.
- 8.6 Any landscaping should aim to use native woody species suitable for the area and local soil types as opposed to non-native exotic species of minimal biodiversity value.

Bats

- 8.7 Based upon the findings of the survey covered through sections 6.0-7.0 of the report, whilst following best practice guidance, the stables adjacent to the application site are determined to offer '**Negligible**' bat roost suitability in accordance with the *Bat Conservation Trust - Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed.* (2016) (see **Figure 8.1**). No further surveys are recommended at this time.

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.

Figure 8.1 - Bat Conservation Trust (BCT) extract on negligible roost suitability

- 8.8 Bats are a transient group and buildings can deteriorate over time to provide greater roost value based on site-specific factors, therefore these recommendations apply for 18 months; if works are not carried out within 18 months of the issue of this report an updated preliminary roost assessment is recommended at the adjacent stables. If in the event of an updated appraisal that bat(s) are found, or evidence of bat(s) (see **Figure 8.2**), or during works or at any time, then an Ecologist should be on hand to provide suitable guidance.
- 8.9 Nearby treelines should be considered valuable habitats to bats in a local context in that they likely provide valuable foraging/commuting habitat; any loss of trees to facilitate development works should be adequately compensated.
- 8.10 The inclusion of various bat boxes would enhance opportunities for a variety of roosting bats – see **Appendix IV**.



Figure 8.2 – Evidence of bats – droppings on the left / Common Pipistrelle bat on the right – indicative

Birds

- 8.11 No impacts are likely to occur to any WCA Schedule 1 listed species and no further surveys or mitigation is recommended at this time in considering protected bird species.
- 8.12 In relation to more common birds, the stables adjacent to the application site likely support house sparrow and swallows for breeding. In addition, trees and woody vegetation adjacent to the application site provides viable nesting opportunities for smaller birds; as breeding birds are protected when breeding / when at the nest, timings implications are applicable to avoid disturbing, displacing (albeit temporary) or harming breeding birds and risk breaching legislation.
- 8.13 It is recommended that no removal of, or works to any features that may be used by breeding birds, shall take place during the main bird breeding season (1st March to 31st August inclusive), unless a competent Ecologist has undertaken a careful, detailed check for active birds' nests immediately before any works and provided confirmation that no birds will be displaced or harmed and/or that there are appropriate measures in place to protect nesting bird interest on site. Appropriate measures - where/if active nests are located by the Ecologist - that may affect them would have to be delayed until the young have fledged, and the nest has been abandoned naturally. This can be aided, for example, via implementation of appropriate buffer zone(s) around the nest site (typically 5-10 metres) in which no disturbance is permitted until the nest is no longer in use. This would have to be coordinated through the expert judgement of the professional ecologist and is typically species dependant.

Point 3.24 of the British Standards Publication 42020:2013 defines a professional ecologist as: *“a person who has, through relevant education, training or experience, gained recognised qualifications and expertise in the field of ecology and environmental management.”*

NB: *All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependant young are protected from destruction, damage and disturbance under the Wildlife & Countryside Act 1981 (as amended). It is a punishable offence to interfere in any way with an active nest.*

- 8.14 The inclusion of various bird nest boxes would enhance opportunities for breeding birds – see **Appendix IV**.

Other terrestrial mammals

- 8.15 The proposals pose negligible risks to badgers or hedgehogs and no specific further measures are recommended at this time.

Herpetofauna

- 8.16 In respect of herpetofauna, the combined desktop and field-based results suggest there is a negligible scale of risk associated with the proposals concerning great crested newts, common amphibians or reptiles and no further surveys or specific recommendations are considered necessary at this time. However, it is understood the local planning authority on the advice of their ecological advisors have requested Reasonable avoidance measures (RAMs) be carried out under the supervision and guidance of a suitably qualified ecologist.
- 8.17 Reasonable avoidance measures for amphibians have been provided in **Appendix III**.

Enhancement

- 8.18 In considering PPW (2021) which requires developments to achieve a Net Benefit for Biodiversity (NBB), enhancement ideas that consider the specific scale and nature of the proposals in accordance with the principles of '*Biodiversity Net Gain: Good practice principles for development*' (CIEEM *et. al.*, 2019), are presented in **Appendix IV**.

9.0 Bibliography

- **Baker, J., Beebee, T., Buckley, J., Gent, T. and Orchard, D.** 2011. *Amphibian Habitat Management Handbook*. Amphibian & Reptile Conservation, Bournemouth.
- **Beebee, T. & Griffith, R.** 2000. *Amphibians and Reptiles*. Collins
- **Bat Conservation Trust (BCT)**, 2018. *Bats and artificial lighting in the UK: Bats and the Built Environment series*. Available from: www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/
- **BRE**. 2014. *Biodiversity Guidance for Solar Developments*. Eds G E Parker and L Greene.
- **British Standards Institution (BSI)**. 2012. Trees in relation to design, demolition and construction - recommendations. BS 5837:2012. ISBN 978 0 580 69917 7.
- **Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J** (2020). The UK Habitat Classification User Manual Version 1.1 at <http://www.ukhab.org/>
- **BSBI**, 2020. *BSBI Maps*. Available from: www.bsbi.org/maps
- **CIEEM**, 2016. *Guidelines for Ecological Impact Assessment in the UK and Ireland*, 2nd edition. Available from: www.cieem.net/data/files/Publications/EcIA_Guidelines_Terrestrial_Freshwater_and_Coastal_Jan_2016.pdf
- **CIEEM**. 2020. Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK. 2nd Edition. Chartered Institute of Ecology and Environmental Management. Winchester, UK
- **CIEEM**, 2017. *Guidelines for Preliminary Ecological Appraisal*, 2nd edition. Available from: www.cieem.net/data/files/Publications/Guidelines_for_Preliminary_Ecological_Appraisal_Jan_2018_1.pdf
- **CIEEM**, 2019. *Biodiversity Net Gain: Good practice principles for development*. Available from: www.cieem.net/data/files/Publications/Biodiversity_Net_Gain_Principles.pdf
- **CIEEM**. 2020. Advice on Covid-19 and Undertaking Site-Based Ecological Work. Available Online - <https://cieem.net/wp-content/uploads/2020/03/CIEEM-COVID-19-Advice-31March2020-FINAL.pdf>
- **Collins, J** (ed.), 2016. *Bat Surveys for Professional Ecologists: Good Practice Guidelines*, 3rd edition. The Bat Conservation Trust, London.
- **Communities & Local Government (C&LG)**, 2019. *National Planning Policy Framework*. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/60777/2116950.pdf
- **Dean, M; Strachen, R; Gow, D; Andrews, R**, 2016. *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series)*. The Mammal Society, London.
- **DEFRA**, 2018. *Net gain: Consultation Proposals*. Available from: https://consult.defra.gov.uk/land-use/net-gain/supporting_documents/netgainconsultationdocument.pdf
- **Edgar, P., Foster, J. and Baker, J.** 2010. *Reptile Habitat Management Handbook*. Amphibian & Reptile Conservation. Bournemouth.
- **English Nature**, 2001. *Great Crested Newt Guidelines. Version Aug 2001*.

- **Froglife**, 2015. *Surveying for reptiles*. Available from: <https://www.froglife.org/wp-content/uploads/2013/06/Reptile-survey-booklet-3mm-bleed.pdf>
- **Global Biodiversity Information Facility (GBIF)**, 2019. Available from: <https://www.gbif.org/>.
- **GOV.UK**. 2015. *Reptiles: surveys and mitigation for development projects*. Available online www.gov.uk/guidance/reptiles-protection-surveys-and-licences.
- **Gunnell, K. Grant, G. and Williams, C.** 2012. 'Landscape and urban design for bats and biodiversity'. Bat Conservation Trust.
- **Joint Nature Conservancy Council (JNCC)**, 2010. *Handbook for Phase 1 habitat survey*. Available from: http://jncc.defra.gov.uk/PDF/pub10_handbookforphase1habitatsurvey.pdf
- **Magic Maps Application**, 2023. Available from: www.natureonthemap.naturalengland.org.uk/MagicMap.aspx
- **Mitchell-Jones, A. J. (ed.)**, 1987. *The bat worker's manual*. Dept. BWM, Nature Conservancy Council, Northminster House, Peterborough, PE1 1UA
- **Mitchell-Jones, A. J.**, 2004. *Bat mitigation guidelines*. External Relations Team, English Nature, Northminster House, Peterborough, PE1 1UA.
- **Natural England**, 2015. *Great Crested Newts: Surveys and mitigation for developments and projects*. Available from: <https://www.gov.uk/guidance/great-crested-newts-surveys-and-mitigation-for-development-projects>.
- **Oldham R.S.; Keeble J.; Swan M.J.S.; Jeffcote M.**, 2000. *Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus)*. Herpetological Journal 10 (4), 143-155.
- **Rose. F.** 1999. *Indicators of ancient woodland: The use of vascular plants in evaluating ancient woods for nature conservation*. Available from: <http://pad.basingstoke.gov.uk/documents/4753/01/02/76/01027625.PDF>
- **RSPB**. 2017. *RSPB Policy briefing on Solar Power*. Available on the World Wide Web at solar-power-briefing---may-2017-update-revised.pdf (rspb.org.uk)
- **Sewell, D; Griffiths, R.A; Beebee, T.J; Foster, J; Wilkinson, J. W.**, 2013. *Survey protocols for the British herpetofauna*. Available from: http://www.narrs.org.uk/documents/Survey_protocols_for_the_British_herpetofauna.pdf
- **Stace. C.**, 2019. *New Flora of the British Isles*, 4th edition. Cambridge University Press, The Edinburgh Building, Cambridge, CB2 2RU.
- **Stroh. P. A; Leach. S. J; August. T. A; Walker. T. J; Pearman. D. A; Rumsey. F. J; Harrower. C. A; Fay. M. F; Martin. J. P; Pankhurst. T; Preston. C. D; Taylor. I.**, 2014. *A Vascular Plant Red-List for England*, 2nd edition. Trollius Publications.

Appendix I: Site Photographs



Plate 1 – The application site viewed from the south looking north-west



Plate 2 – The application site viewed from the south looking north-east



Plate 3 – The application site eastern boundary



Plate 4 – A closer view of the rubble piles and grassy embankment



Plate 5 – A view of the stables block eastern aspect that faces the application site



Plate 6 – Interior of the stables block adjacent to the application site

Appendix II: Botanical Species List

Species nomenclature follows Stace, C (2019).

Any invasive non-native species are denoted by the acronym (INNS).

Scientific	Common
<i>Agrostis stolonifera</i>	Creeping Bent
<i>Alliaria petiolata</i>	Garlic Mustard
<i>Cirsium vulgare</i>	Spear Thistle
<i>Cupressus × leylandii</i>	Leyland Cypress
<i>Festuca</i> agg.	Fescue
<i>Galium aparine</i>	Cleavers
<i>Holcus lanatus</i>	Yorkshire-fog
<i>Jacobaea vulgaris</i>	Common Ragwort
<i>Lapsana communis</i>	Nipplewort
<i>Ligustrum ovifolium</i>	Garden Privet
<i>Lolium perenne</i>	Perennial Rye-grass
<i>Poa annua</i>	Annual Meadow-grass
<i>Prunus spinosa</i>	Blackthorn
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Rubus fruticosus</i> agg.	Bramble
<i>Rumex obtusifolius</i>	Broad-leaved Dock
<i>Taraxacum officinale</i> agg.	Dandelion
<i>Trifolium repens</i>	White Clover
<i>Urtica dioica</i>	Stinging Nettle

Appendix III: Reasonable Avoidance Measures for Amphibians

Great Crested Newt (GCN) & other herpetofauna

Application Site: Cae Ffynnon, Llan-y-Pwll, Holt, Wrexham, LL13 9SD

Method Statement Objectives

Development related activities on the application site (named above), may potentially affect herpetofauna that may inhabit the local area. As a result, safeguards must be applied to protect these species subject to presence; the Method Statement below outlines sequential measures to be implemented to ensure these objectives are achieved.

Before Any Works Understanding

- Before any works commence at the application site all site contractors/stakeholders will be briefed by 'Tool-box' talk of the potential for protected species to occur on site, what to look out for and what to do in the event that animals are found. This talk should cover ID aids and legal ramifications of an offence through reckless or irresponsible behaviour.
- Contractors/stakeholders will ask any questions as required following the toolbox talk, before signing the Audit Form (see overleaf) which will be kept by the Ecologist/Ecological Clerk of Works (ECoW) for audit trail.
- Following the toolbox talk an "Environmental Champion" will be appointed, likely to be the Site Manager or Owner, who will be responsible henceforth to report to the Ecologist/ECoW throughout the work schedule at agreed intervals in the absence of ecological supervision.
- Photograph(s) of relevant protected species will be displayed at the site office memo board and/or kept by the lead contractor's personal being for visual reference purposes.
- Construction works are to only take place during daylight hours 8.00am-6.00pm as opposed to the night time, when amphibians are most active.

Pre Works

Timings

- Juvenile and adult amphibians are most vulnerable to harm during their **hibernation period considered to be November to February** inclusive. Site clearance works should avoid this sensitive period. If this is not possible works carried out during this sensitive period (between November – February) should take into account the potential presence of hibernating animals within rubble piles, assorted items lay about site, areas of dense vegetation, for example.
- Pre-commencement check - a walkover and hand search is to take place by an Ecologist/ECoW before any rubble, pile, bulky item or vegetation clearance.

Hibernaculum creation

- A hibernaculum will be constructed within a designated ecology area under instruction of the Ecologist/ECoW. Any herptiles found during the work schedule will be carefully relocated to the hibernacula acting as a safe receptor zone within the safety of the buffer zone throughout the work schedule.

During Works

- Any clearance works to areas of interest/ refugia as considered applicable by the Ecologist (such as log piles, brick piles) or loss of existing dense vegetative features, should only commence after a careful visual inspection (Hand Search) has been carried out and the Ecologist has determined that no animals are present and is satisfied no animals are at risk. Any animals found that are not European Protected Species (EPS) will be removed from

harm's way and placed into suitable buffer zones or built hibernacula, species pending and following correct protocols/biosecurity measures.

- For the full duration no works are to extend off site in the areas adjacent to the red line boundary or within agreed buffer zones/construction fencing. No pallets, skips or otherwise are to be placed upon areas of dense vegetation and should instead only be placed on flat, cleared ground.
- The impact of works on adjacent habitats will be avoided by the clear demarcation of the works area. All work must strictly be in accordance with all relevant Pollution Prevention Guidance.
- Contingency/emergency plans should be drawn up to address chemical spillage, drainage, collision, etc.
- Machinery and materials to remain on bare ground and reasonable efforts must be made to avoid creating piles, or accumulated aggregates. Materials that require piling will be stored within areas of bare ground above ground level, using pallets to prevent reptiles and amphibians from seeking shelter below.
- Any excavated materials stored overnight will be searched prior to being used as infill.
- Where excavations/trenches are excavated it should be ensured that they are not left open overnight to avoid amphibians falling into them and becoming trapped. If trenches cannot be filled in after the working day for whatever reason, an escape mechanism such as wooden planks of 10 cm wide should be placed in them at a 45 degree diagonal angle, to serve as an escape mechanism to small animals including mammals and herpetofauna.
- Excavations should be checked in the morning on a daily basis for the presence of any animals that may have fallen in during the night. Excavations should be backfilled as soon as possible.
- All site operatives will maintain a watching brief throughout the work schedule and report any issues, anomalies or discrepancies to the Ecologist/ECoW, or wildlife champion, appointed.
- If any newts are found work must stop immediately and contact should be made with the assigned licensed, qualified Ecologist / ECoW to identify and assess the situation before providing further guidance.
- At no point should any person handle a reptile without the express permission of the Ecologist.
- Any frogs or toads found should be carefully caught using wet gloves, placed (where capture is possible and humane) in a ventilated box using dampened gloved hands and released into suitable nearby like for like habitat that will be unaffected by the proposed works. Toads should not be touched using non-gloved hands as they secrete a toxin through their skin and they should not be handled for longer than is necessary.
- Plastic netting, wire coils or similar hazardous features should not be left on the ground, to avoid entanglement. Aggregates/constructional materials should be stored on pallets as opposed to the storing on the ground.
- If in the event a great crested newt (GCN) is found work must cease; the Ecologist/ECoW will be made aware of the finding and will appraise the situation providing further advice. Site staff must be made aware that if GCN are found there is a correct procedure in place to follow, and failure to halt works may result in committing an offence. At no point should any person handle a GCN or suspected GCN. Unlicensed handling is illegal and untrained handling may cause the newt unnecessary stress and injury.

Cae Ffynnon, Llan-y-Pwll, Holt, Wrexham, LL13 9SD
Preliminary Ecological Appraisal

A Guide to Timings

Operation	Months												Notes
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Early understanding													
Toolbox Talk	Any time prior to works												Soon as possible for early understanding
Appoint Wildlife Champion	Following toolbox talk												-
Pre-works													
Buffer zone demarcation & signage	Pre-habitat manipulation & hand search												To avoid encroaching in sensitive area
Hand-search on site by Ecologist			Y	Y	Y	Y	Y	Y	Y	Y			Prior to habitat manipulation
Habitat Manipulation			Y	Y	Y	Y	Y	Y	Y				Staggered, as described, to allow animals to move away
Establishment of buffer zones during management	During habitat manipulation												Specifics To be sanctioned by LPA
Breeding Bird Checks			Y	Y	Y	Y	Y	Y					Where birds are found to be breeding on site, buffer zones established temporarily until the birds have fledged the nest
Hibernaculum creation in buffer zone			Y	Y	Y	Y	Y	Y	Y	Y			To provide a receptor area for translocated animals
										Recommended timeframe		Y	

Identification Aids

Great Crested Newt (*Triturus cristatus*)



Identification Tips

- Largest Newt in the UK, up to 16cm in length, but juveniles are smaller,
- Big & Black animal with Rough, Warty skin,
- Orange/yellow colouring on Belly,
- Irregular black blotches on Belly,
- Toes banded Black/orange (Yellow toe nails),
- Male has a jagged crest on its back which sags when not in the water, and a separate smoother crest along tail, white stripe on tail too,

DO If a GCN is discovered during works, STOP ALL WORKS in the area, inform your site manager and contact the project ecologist IMMEDIATELY .	DON'T Do not touch or handle a GCN they are very delicate – and it is against the law. Penalties for breaking the law include unlimited fines, imprisonment and seizure of equipment. DO NOT RISK BREAKING THE LAW
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For any questions call Tyrer Ecological Consultants Ltd

Tel: 01704 875 781

Slow-worm (*Anguis fragilis*)



Grass snake (*Natrix natrix*)



DO

If any reptile is found during works,
STOP ALL WORKS within the area and
inform your site manager and contact
the project ecologist **IMMEDIATELY**.

DON'T

Do not touch or handle a reptile, they are
very delicate.
Penalties for breaking the law include
unlimited fines, imprisonment and seizure of
equipment.

DO NOT RISK BREAKING THE LAW

Toolbox Talk Audit Form

Tyrer Ecological Consultants Ltd



Site:		Ecologist(s):	
I can confirm I have attended the formal Toolbox talk held by the named Ecological Consultant. I confirm I am aware of the legislation in relation to herpetofauna species that may be in the locale. I confirm I will endeavour, to the best of my capability, to follow the measures outlined in the RAMS to protect all animals from harm, and know what to do if I encounter protected species.			
Name:		Signed:	
Company:		Date	
Name:		Signed:	
Company:		Date	
Name:		Signed:	
Company:		Date	
Name:		Signed:	
Company:		Date	
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Name:		Signed:	
Company:		Date	

Appendix IV: Biodiversity Enhancement: General Recommendations

Native Planting and/or Landscaping - recommended species

The below species have been assessed against the local soil and habitat types and are deemed suitable for the site. All plant material should comply with the minimum requirements in BS 3936-1: 1992 Specification for trees and shrubs and BS 3936-4: 2007 Specification for forest trees and BS 8545: 2014 Trees from Nursery to Independence in the Landscape. Any plant material, which in the opinion of the appointed Landscape Architect, does not meet the requirements of the Specification, or is unsuitable, or defective in any other way, will be rejected. The minimum specified sizes in the plant schedule will be strictly enforced. The contractor should replace all plants rejected at own cost.

	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
Climbers	Stinking Hellebore	<i>Helleborus foetidus</i>	Semi-shade or open areas
	Honeysuckle	<i>Lonicera periclymenum</i>	Dry-moist soils
	Hops	<i>Humulus lupulus</i>	Dry-moist soils
	Ivy	<i>Hedera helix</i>	Dry-moist soils
Woody Shrubs	Sweet-briar	<i>Rosa rubiginosa</i>	Dry-moist soils
	Blackthorn	<i>Prunus spinosa</i>	-
	Dogwood	<i>Cornus sanguinea</i>	-
	Guelder Rose	<i>Viburnum opulus</i>	-
	Hawthorn	<i>Crataegus monogyna</i>	-
	Hazel	<i>Corylus avellana</i>	-
Trees	Holly	<i>Ilex aquifolium</i>	-
	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>	-
Aquatic/marginal plants	Common Water-crowfoot	<i>Ranunculus aquatilis</i>	Ponds
	Marsh Marigold	<i>Caltha palustris</i>	Marginal vegetation
	Ragged Robin	<i>Silene flos-cucculi</i>	Marginal vegetation
	Water Mint	<i>Mentha aquatica</i>	Marginal vegetation
	Water-violet	<i>Hottonia palustris</i>	Ponds
	White Water-lily	<i>Nymphaea alba</i>	Ponds

Enhancement for Bats



- Beaumaris woodstone bat box

This bat box is made entirely from Woodstone, a robust material comprising concrete and wood fibres. The Beaumaris box has a single narrow cavity which makes it suitable for crevice roosting bats such as the Common Pipistrelle, Soprano Pipistrelle, Nathusius' Pipistrelle, Brandt's bat and Whiskered bat. The interior of the box has a rough surface for bats to cling to and the front of the box features a subtle but attractive imprint of a bat in flight.

Suitable for attaching to external walls and available in two sizes: the Midi and the Maxi.

For more information see www.nhbs.com/beaumaris-woodstone-bat-box.



- Cardinal bat box

The Cardinal Bat Box incorporates three separate chambers with laddered entrance holes to each direction.

Nesting Birds

House sparrow

The Sparrow Terrace has been designed to help redress the balance of falling House Sparrow numbers. The current UK population is now half of what it previously was in 1980 and this is widely attributed to habitat destruction and lack of suitable nesting spaces. House Sparrows are social birds and like to nest in company, therefore, this terrace provides ideal nesting opportunities for three families.

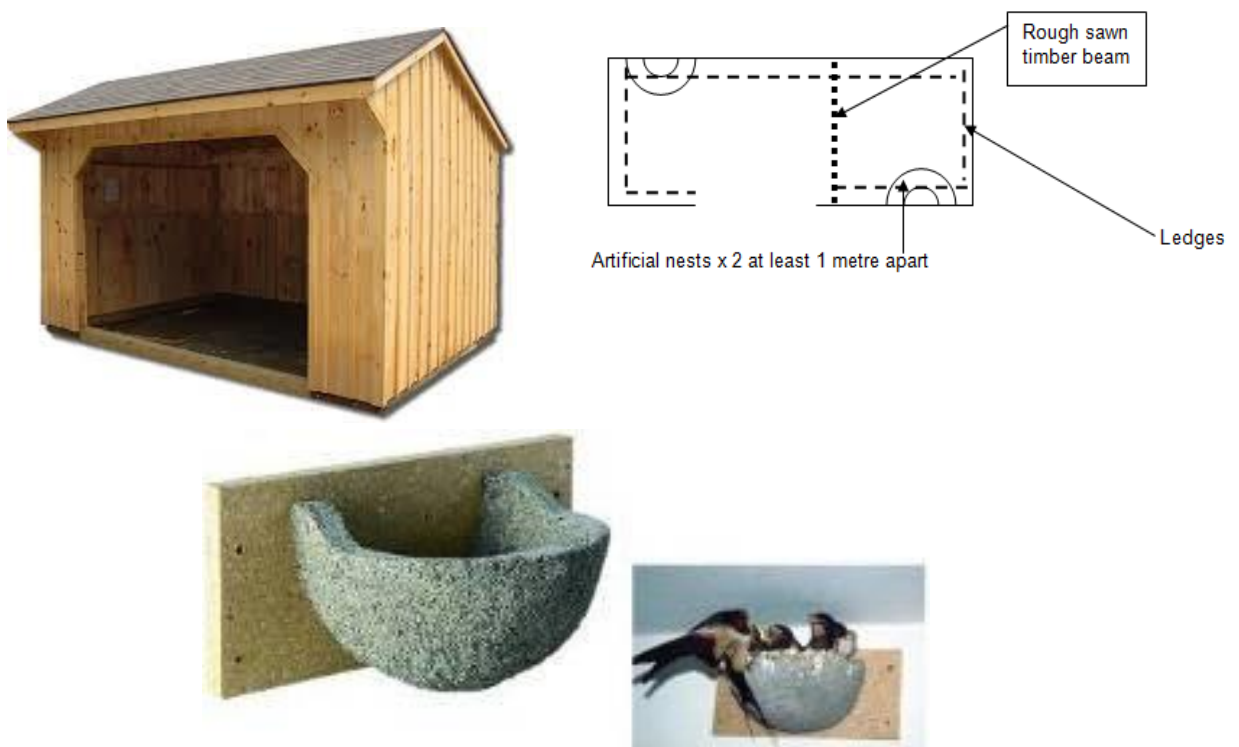
The terrace can be fixed on to the surface of a suitable wall or incorporated into the wall. It is suitable for all types of buildings.

www.nhbs.com/title/174850/1sp-schwegler-sparrow-terrace



Swallows

Creation of an open type shed (pitched or flat roof) as shown below would replicate conditions of nest sites at the site and offer swallows a means of nesting following summer migration.



- Artificial swallow nest cups can be purchased online and placed inside.

Specification

- Sheds can be cited in most areas of the site that allow swallows to fly inside/outside freely,
- Recommended minimum of 6.0' x 8.0' x 3.0' metres (length x width x height),
- Two Swallow cups to be spaced compensate for two cups lost, and so on.

Enhancement for Invertebrates

- Custom Invertebrate hotels



e.g.

E.g. - www.amazon.co.uk/Large-Wooden-Insect-Hotel-House/

Alternatively, bug hotels can be created easily using raw materials on site.



Custom insect hotel using existing materials on site

- National Trust Bee Log

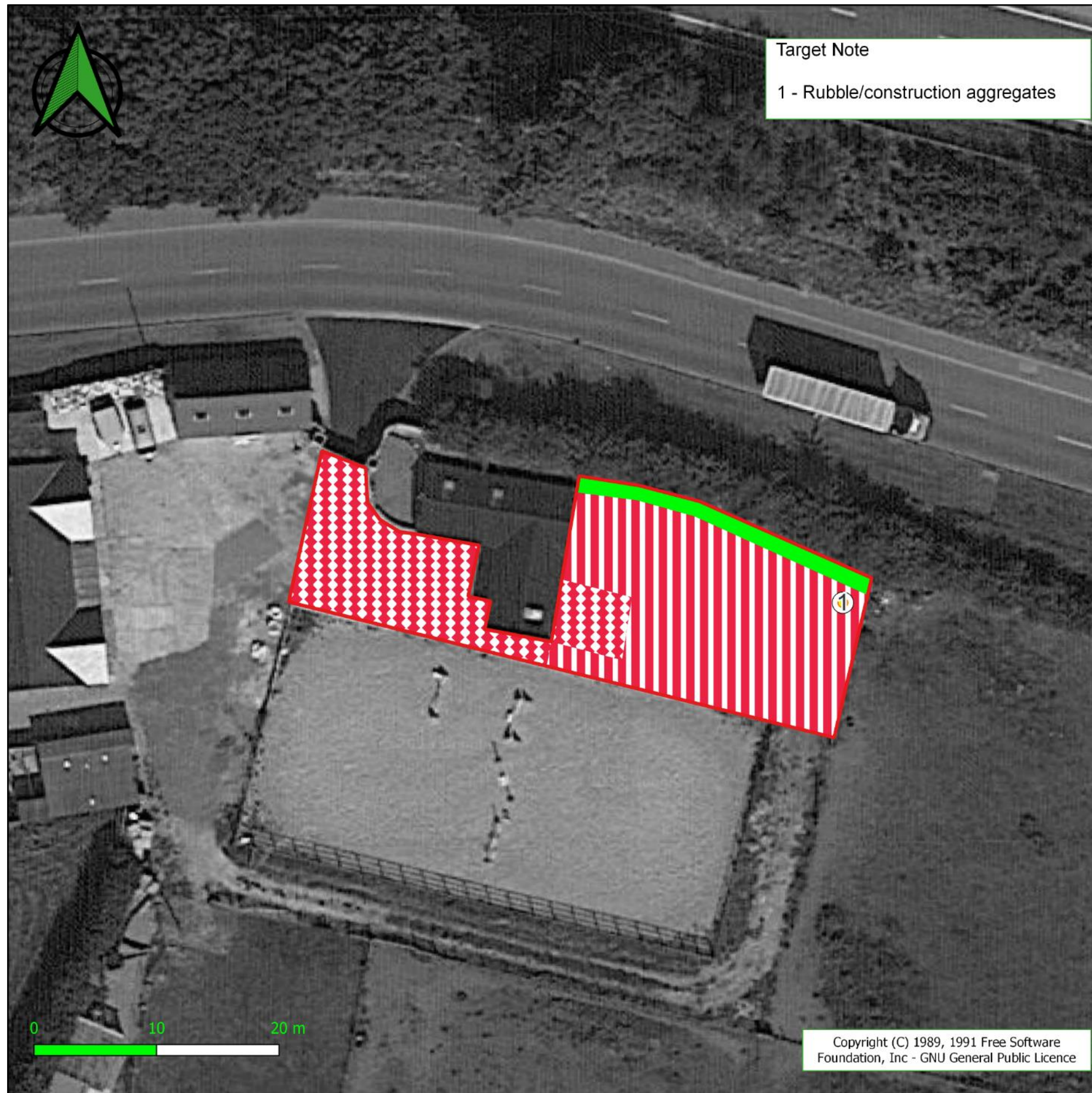
<https://shop.nationaltrust.org.uk/national-trust-bee-log-wicken-fen-collection>



- Bee Bricks

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.



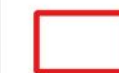


Target Note

1 - Rubble/construction aggregates



UK Habitats Key



Application site boundary



Target Notes



g4 - modified grassland



u1b - developed land, sealed surface



u1b6 - other developed land

Cae Ffynnon

Survey Date: 14/03/2023
Drawn: MJP
Date Drawn: 22/03/2023
Size: A3
Scale: 1:300:00

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