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Ferndale Garden Centre, Berse Road, New Broughton, Wrexham, LL11 6TP
National Grid Reference: SJ 31772 50912

Preliminary Ecological Appraisal & Dusk Emergence Bat Surveys

Prepared for:

Blueprint Architecture Ltd

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Summary

An outline planning application regarding Ferndale Garden Centre, Wrexham, proposes to demolish the existing residential property, remove scrub and trees to facilitate the construction of an access road to the site followed by the construction of residential dwellings. Therefore, the Tyrer Partnership was commissioned by Blueprint Architecture Ltd to undertake a preliminary ecological appraisal of the site including standardised habitat mapping, which was conducted during May 2017. If additional surveys are required following the initial site visit the report will outline the details of those further requirements.

Broadly, in its current condition the site consists of a relatively modest sized plot, which comprises of one residential building and a large area of hardstanding used as a car park. To the boundaries of the car park exists a ruderal ephemeral/short-perennial botanical assemblage alongside scattered scrub/shrub and scattered broadleaved and coniferous trees.

As a consequence of these broad habitat types, the site offers potential for foraging / commuting / foraging bats, / breeding birds, foraging / commuting amphibians and sheltering / foraging for Hedgehog. As a result the report will recommend procedures to ensure that any potential impact to wildlife species can be avoided or significantly reduced.

Vegetation: The site is relatively species-poor throughout areas of hardstanding and amenity grassland, however, ruderal assemblages to the northern and southern boundaries contained three notable botanical species. These include: Bristly Ox-Tongue (*Helminthotheca echioides*), Tall Ramping Fumitory (*Fumaria bastardii*) and Buckwheat (*Fagopyrum esculentum*) which are all extremely localised in distribution within North Wales. It is thus recommended that as part of any future proposals for the site an area should be set aside for native wildflower seeding to compensate for the loss of botanical diversity and act as a biodiversity enhancement feature for the site (see Appendix 3).

No invasive species were encountered throughout the site although there were five injurious weeds that were infrequent on site in the form of Creeping Thistle (*Cirsium arvense*), Broad-Leaved Dock (*Rumex obtusifolius*), Curled Dock (*Rumex crispus*), Spear Thistle (*Cirsium vulgare*) and Common Ragwort (*Senecio jacobaea*). These do not pose a threat to agricultural systems and so no further recommendations in regards to these species occurrence on site is necessary.

Bats: There is one building that is within the survey boundary east of the site that will be affected by the proposals. The single storey building is T-shaped and of brick construction with a tiled pitched roof; an internal inspection revealed a truss designed roof and the presence of bitumen underfelt throughout. Within the loft compartment, there was one main accumulation of recent and historic bat droppings (approximately 70) indicative of Pipistrelle bat species. The external inspection of the house revealed two bat ingress opportunities by way of a single gap in the roof verge on the western elevation leading into the loft and a gap in the barge board/soffit on the western elevation.

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It is thus concluded that the residential building at Ferndale Garden Centre is a confirmed bat roost and possesses high potential for roosting bats according to current BCT guidelines. Hence, it is recommended that three follow-up dusk emergence or dawn re-entry surveys in relation to bats are conducted between the months of May-August to verify the species and numbers of bats occupying the buildings. In addition to the use of the building the surveys should aim to establish if the trees/hedges are used for commuting/foraging purposes. Where bats or their roost will be affected by development/work, in this case the residential house at Ferndale Garden Centre, then a European Protected Species Mitigation Licence will be required to legally allow the development/work to commence.

There is an absence of trees at which suitable ingress opportunities for bats exist; notwithstanding such absence areas of hedgerow and trees will act as valuable commuting and foraging resource for bats either as a stand alone feature or as a corridor into the wider countryside.

Birds: During the survey no historic nests were located although the site has abundant areas in the form of shrub, scrub and trees that could act as nesting platforms for breeding birds. The report will recommended that if the trees and/or shrub/scrub and/or hedgerow cannot be retained then removal should be undertaken outside of the breeding season of birds (March - August) unless it can be conclusively established, by an ecologist, that nesting birds are absent. All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependant young are protected under the Wildlife & Countryside Act 1981 (as amended).

Terrestrial mammals: Based on the survey results the report will recommend that if any scrub or other dense vegetation is to be removed, it is done so in a careful manner to check for the presence of Hedgehog (*Erinaceus europaeus*). Additionally, it is recommended that if Hedgehogs are discovered during their most vulnerable time, i.e. during hibernation/breeding then they are to be left in situ, and the habitat retained around them. If they are in danger of being harmed then they should be carefully relocated to a suitable sheltered area away from the work.

No recent Badger activity was found on the site (such as grubbing, setts, etc) or close to the site boundaries and it is unlikely Badger commute to the site due to the unfavourable nature of the garden centre.

Amphibians: The site has no suitable areas for breeding Great Crested Newt (*Triturus cristatus*) (GCN) and although there refuge/hibernacula opportunities the presence of this species is deemed highly unlikely. Ponds are absent within a 250 metre radius and the site is relatively isolated due to the surrounding roads and development that will act as a barrier to GCN. Due to the combination of the above elements no further surveys will be required in regards to GCN.

As per the recommendations contained within the daytime recommendations, three dusk emergence surveys were subsequently undertaken on the 2nd and 21st August and the 5th September 2017. The surveys identified the emergence of six, two, and two Common Pipistrelle bats respectively. As such, the presence and destruction of a bat roost will need to be addressed from both a conservation and legal perspective along with appropriate mitigation prior to the undertaking of any proposed works.

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1.0 Introduction & Reason for Survey

- 1.1 An outline planning application regarding Ferndale Garden Centre, Wrexham (Figure 1) proposes to clear the area of existing hardstanding and demolish the residential dwelling to the east of the site surveyed, followed by redevelopment to accommodate up to eight residential dwellings (Figure 2). This is part of a phased development which extends onto the whole site (Figure 1 blue and red boundaries below). In addition, the proposals further include removing scrub and semi-mature trees to accommodate an access road via the centre of the proposed development. Therefore, the Tyrer Partnership was commissioned by Blueprint Architecture Ltd to undertake a preliminary ecological appraisal of the site including standardised habitat mapping, which was conducted during May 2017. If additional surveys are required following the initial site visit the report will outline the details of those further requirements.



Figure 1: Existing site plan (surveyed boundaries in red)

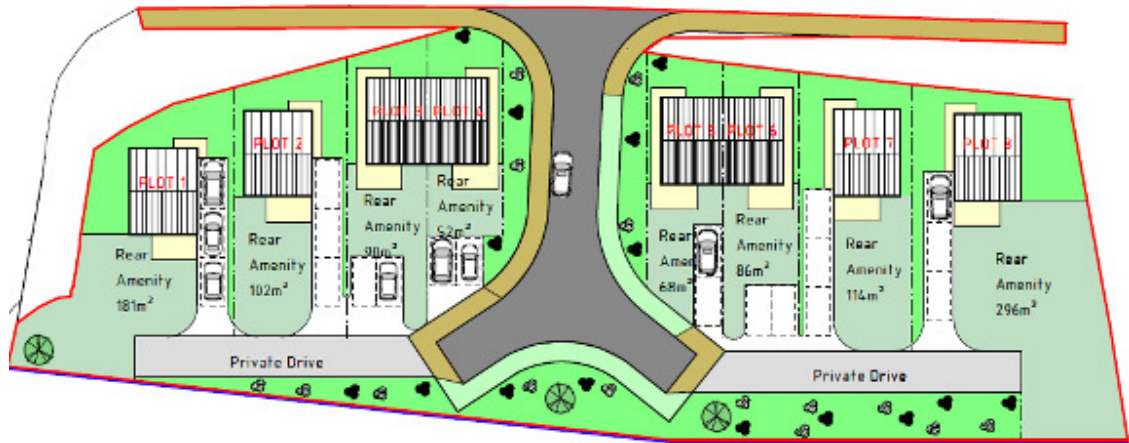


Figure 2: Proposed site plan

1.2 The basic objective of the survey was to ascertain the nature of the land and building, and where possible obtain information on any sensitive wildlife habitats or species that may be present and if so if they will be affected by future development. To achieve this objective the survey aimed to identify/assess any of the following:

- The presence of species with non-statutory protection
- The presence/potential presence of species protected under the Wildlife and Countryside Act 1981, as amended or the conservation of Habitats and Species Regulations 2010 (as amended)
- Identify any species or habitats that require special consideration during future development.
- Identify the presence of statutory or non-statutory designated sites in close proximity
- If the above are present assess any impacts that may occur as a result of development

If the habitat was found to be suitable for the aforementioned species or signs of use were found then more detailed surveys would be recommended. If any European Protected Species was subsequently found during those detailed surveys and may be affected by the development proposals then a European Protected Species Licence would be required to proceed with the development.

Natural Resources Wales (NRW), in exercise of the powers conferred under regulation 53(1) and 56(3) (a) of the Conservation of Habitats and Species Regulations 2010, may issue licences for the following purposes:-

Preserving public health or public safety or other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment.

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Before issuing a licence under the Habitats Regulations, the licensing authority must be satisfied that:-

“There is no satisfactory alternative” to the work as proposed and, that the proposed actions “will not be detrimental to the maintenance of the population of the species at a favourable conservation status (FCS)

- 1.3 *Planning Policy Wales* (PPW) (2002) sets out the land use planning policies of the Welsh Government (WG). It is supplemented by a series of Technical Advice Notes (TANs). Procedural advice is given in National Assembly for Wales / Welsh Office circulars. PPW, Ministerial Interim Planning Policy Statements (MIPPS), the TANs and circulars together comprise national planning policy to which local planning authorities in Wales must have regard in the preparation of development plans.

Detailed advice on the preparation of unitary development plans (UDPs) is contained in *Unitary Development Plans Wales*, 2001. Detailed advice on the preparation of Local Development Plans (LDPs) under the Planning and Compulsory Purchase Act 2004 is given in *Local Development Plans Wales*, 2005.

Technical Advice Note (TAN 5 2009) provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. This guidance note should be read in conjunction with *Planning Policy Wales* (2002), in particular with Chapter 5 *Conserving and Improving the Natural Heritage and Coast* which sets out the Assembly Government’s objectives for the natural heritage and the land use planning policies which support these.

When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:-

If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused

2.0 UK Biodiversity Plan

- 2.1 Section 7 of the Environment Act (2016) provides an updated version of the United Kingdom Biodiversity Action Plan which lists priority species/habitats. Based upon the site visit there is the potential for twelve UK priority species to be present within the locality, all of which are listed in Table 1. However, the presence of these species may not have been ascertained by observational methods but by an assessment of the habitats present and their presence is not conclusive.

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Common name	Species name
West European Hedgehog	<i>Erinaceus europaeus</i>
Noctule	<i>Nyctalus noctula</i>
Brown Long-Eared Bat	<i>Plecotus auritus</i>
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>
House Sparrow	<i>Passer domesticus</i>
Song Thrush	<i>Turdus philomelos</i>
Common Linnet	<i>Carduelis cannabina</i>
Common Starling	<i>Sturnus vulgaris</i>
Common Toad	<i>Bufo bufo</i>
Garden Tiger	<i>Arctia caja</i>
Cinnabar Moth	<i>Tyria jacobaeae</i>

Table 1: s.41 species that may be present within the locality

One UK Priority Habitat (i.e. Hedgerows) was noted on the site. The hedgerow to the eastern border comprised largely of Hawthorn (*Crataegus monogyna*) with trees such as Sycamore (*Acer pseudoplatanus*) and Cherry (*Prunus avium*) throughout.

3.0 Local Biodiversity Action Plan (LBAP)

3.1 LBAP's are simply a way of encouraging people to work together and deliver a programme of continuing action for biodiversity at a local level. They set out practical steps that aim to:

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

Sites of Local Biological Interest

3.2 Whilst there is no legal protection for Sites of Local Biological Interest per se the presence of a protected species within them would attract the usual protection afforded to it/them. The Wrexham Biodiversity Action Plan (WBAP) lists key local species/habitats considered to be rare or declining in the area. Some may be of national concern, while others may only be locally rare. Some are statutorily protected, although the great majority are not. Within the site, one habitat would classify as a local BAP habitat in the form of 'Garden'. BAP species with potential to be at or close to the site include:-

Common name	Scientific name
Badger	<i>Meles meles</i>
Otter	<i>Lutra lutra</i>
Barn Owl	<i>Tyto alba</i>
Song Thrush	<i>Turdus philomelos</i>
Great Crested Newt	<i>Triturus cristatus</i>

Table 2: WBAP species that may be within the locality

4.0 Site Specific Protected Species and Legislation

4.1 Up to eleven bat species have been recorded in North Wales most of which use built structures, notably occupied residential properties, for roosting. The most frequently encountered species is the Pipistrelle bat (*Pipistrellus pipistrellus*) and its abundant status in North Wales is reflected throughout the UK. All British bats and their **roosts are afforded protection under the 1981 Wildlife & Countryside Act (as amended) and are listed in Schedule 2 of the Conservation of Habitats & Species Regulations 2010 (as amended).

4.2 All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependant young are protected under the Wildlife & Countryside Act 1981 (as amended). Birds listed on Schedule 1 e.g. Barn Owls and Kingfisher are afforded a greater level of protection. Where nesting birds are present then work should be timed outside of the nesting season (March – August) so as to avoid disturbance.

Guidance for Local Authorities: Extract from Office of the Deputy Prime Minister: Circular 06/2005

“It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision.

5.0 Survey Methodology

Desk study

5.1 Prior to the 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 2km 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.

5.2 Satellite imagery was reviewed using sources such as Google Earth (© 2016) to determine the nature of the 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. A data search was not conducted as the available habitats on and surrounding the site allowed a full ecological appraisal with no additional concerns.

Field Survey

5.3 The survey was conducted on the 24th May 2017 by Mr J. Styles (AMRSB), a highly experienced botanist with a FISC level 5, ecologist and acting as accredited agent of Mr S. Irwin an experienced bat surveyor who holds a Natural Resources Wales bat disturbance licence 73156:OTH:CSAB:2016. The results, conclusions, and recommendations have been assessed by Mr Irwin, director of The Tyrer Partnership and his assessment concurs with that of Mr Styles.

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- 5.4 There is a single residential dwelling to the east of the site with a large area of hardstanding with semi-mature trees to its boundaries. (Figure 3)



Figure 3: Site location within the contiguous landscape

BCT Survey Good Practice Survey Guidelines state:

The guidance should be interpreted and adapted on a case-by-case basis, according to the expert judgement of those involved. There is no substitute for knowledge and experience in survey planning, methodology and interpretation of findings, and these guidelines are intended to support these. Where examples are given they are descriptive rather than prescriptive.

- 5.5 The building on site was inspected for potential places that may be of value to bats and if evidence of bat use was present. The external elevations were investigated from ground floor level for places that are frequently used by bats as roosts or ingress points providing access into roost chambers; loft spaces/upper floors are present that were investigated with the aid of a high powered torch.
- 5.6 Trees located within the development area were inspected at a time when tree foliage is largely present, which is not the ideal time to identify bat roost potential as foliage, when present can impede the surveyors view. They were assessed from ground level using binoculars for features that are frequently utilised by bats as roosts or the presence of ingress points such as natural/woodpecker holes splits or fissures that may provide access into further cavities within the tree/s.

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Criteria for roost assessment are based upon the following determinant which is based upon the Bat Conservation Trust 'Bat Surveys: Good Practice Guidelines' (2016):

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).

5.7 A number of factors are used for the bat survey methodology, which include:-

Knowledge of bat species relevant to the site location and geographical range
Nature of the immediate and surrounding habitat in relation to foraging opportunities
Presence/absence of roost potential
Value of roost potential – if present

Following the survey the results, conclusions and recommendations are based upon surveyor experience and knowledge of bat ecology.

5.8 A 'walkover' of the site and immediate boundaries was conducted which included a search for typical signs of badger activity which includes digging, occupied setts, 'runs' leading to and from a sett or the existence of latrines or 'snuffle' holes where badgers have foraged in the ground. At the same time, identification of any actual fauna species and any physical evidence signifying the presence of fauna species would also be documented.

5.9 The site walkover also principally involves the mapping of habitats in relation to their primary botanical assemblages. Botanical assessment includes the formulation of species lists, denoting particularly notable taxa on site such as s.41, red-listed, Schedule 8 specially protected floral species or Schedule 9 listed invasive species.

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- 5.10 A map and field search was undertaken in relation to the presence of ponds or waterways that may support Great Crested Newts or Water voles, the information gathered would then be used to establish if more detailed surveys are required.

6.0 Constraints

- 6.1 There were no constraints due to access restrictions or seasonal timing of the survey in regards to identification of flora but trees were inspected at a time when tree foliage is largely present, which is not the ideal time to identify bat roost potential as foliage.
- 6.2 Having considered the constraints in the context of the site, notably the trees, it is considered that on balance the seasonal timing of the survey presented no significant constraints that would prevent the gathering of information on which to base conclusions and recommendations.

7.0 Desk study results

- 7.1 Ferndale Garden Centre and its associated grounds are located in the rural village of New Broughton at approximately 2km north-west of Wrexham town centre. (Figure 4) It is a relatively modest plot, which comprises of hardstanding, scattered scrub and trees with a single residential building with a small area of semi-improved amenity grassland to the front and rear of the property. Boundaries are characterised by scattered trees, hedgerow, scrub and ruderal plant communities.



Figure 4: Site location

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- 7.2 The contiguous landscape to all aspects of the site comprises of a largely rural/sub-urban environment with moderate connectivity between areas of pasture with hedgerows and tree lines. There are however, many barriers in the form of main roads and development in the nearby vicinity that would hinder the movement/migration of some species, typically GCN. There were a few notable features including scattered areas of trees and fields and Gatewen Marsh SSSI located approximately 350 metres north.
- 7.3 There are 5 ponds within a 1 kilometre radius the closest of which is located at approximately 450 metres north east of the site. The previously identified habitats can be considered as being of value for some of the species for which the survey was undertaken, subject to them being present in the locality.
- 7.4 The site is within close proximity (350 metres) to Gatewen Marsh SSSI. Notwithstanding the presence of the above it is considered that as a result of the proposed development no impact will occur on the protected area or the qualifying species/habitat for which it is designated.

8.0 Field survey results

Bats

There is one building that is within the survey boundary east of the site that will be affected by the proposals. The single storey building is T-shaped and of brick construction with a tiled pitched roof; an internal inspection revealed a truss designed roof and the presence of bitumen underfelt throughout. The presence of the latter increases the probability of occupancy by crevice-dwelling bat species, most notably the Pipistrelle (*Pipistrellus*), whereby, they roost between underfelt and tile/slate. The loft space was non-draughty, warm and dark with no light intrusion; although restrictive truss design roofs are generally unfavourable to loft-dwelling species they are known to inhabit truss roofs where the loft compartment is long enough to allow free flight.

Within the loft one accumulation of recent and historic bat droppings (approximately 70) was located indicative of Pipistrelle bat species. (Figure 5)

The external inspection of the house revealed two possible ingress opportunities corresponding to the location of the droppings internally. These ingress opportunities included a gap in the barge board/soffit and gaps at the roof verge both on the western elevation of the property. The extending habitat, though fragmented by roads and development, comprises relatively good quality agricultural pasture and arable land, with residential development with gardens. Buildings, when in close proximity to favourable habitat, have a higher probability to be occupied by bats.

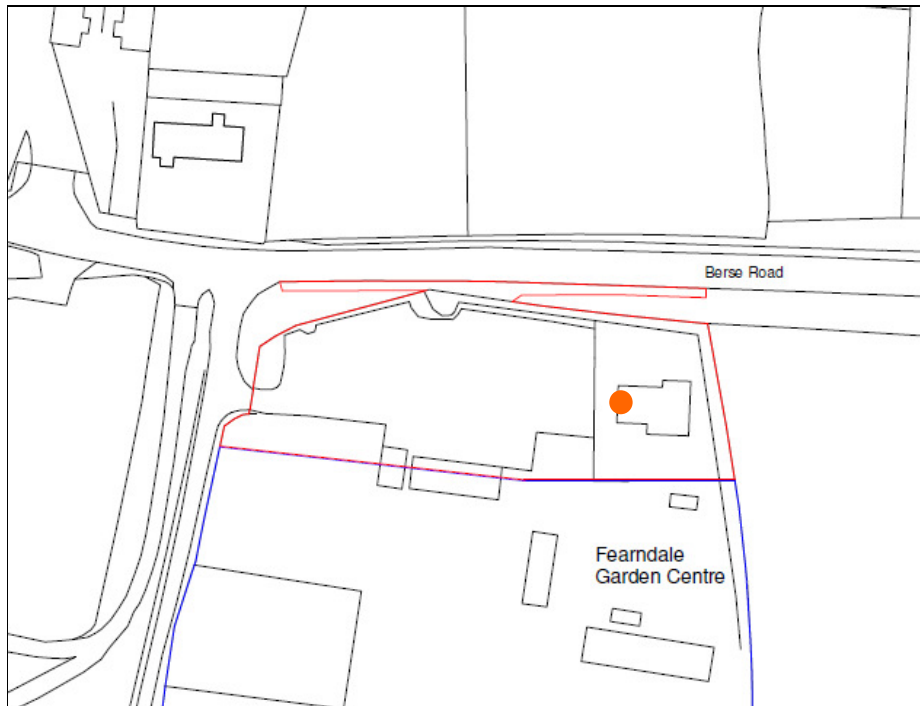


Figure 5

● Accumulation of bat droppings in loft space

There is an absence of trees at which suitable ingress opportunities for bats exist; notwithstanding such absence areas of hedgerow and trees will act as valuable commuting and foraging resource for bats either as a stand alone feature or as a corridor into the wider countryside.

Terrestrial Mammals

During the search of the land encompassed within the site boundaries, no evidence of recent badger presence such as grubbing holes, latrines, footprints, day nests or scratching areas were found. A large extent of the boundaries is fenced and is isolated from the wider countryside via several main roads and development and it is unlikely that badgers would be present due to the unfavourable nature of the garden centre.

The on site habitat is likely to be productive for other amphibians such as the Common Frog (*Rana temporaria*) which could utilise areas of refuge thus it is recommended that any vegetation that will be removed should be undertaken by hand and checks made for the presence frogs or toads; should they be present they should be carefully relocated out of harms way to a suitable like for like habitat.

Breeding birds

No historic nests were located during the survey, this being said, there were abundant areas in the form of hedges/trees that could act as a platform for nesting birds. During the site visit several bird species were encountered (see table below).

<u>Common name</u>	<u>Scientific name</u>
Blackbird	<i>Turdus merula</i>
Blue Tit	<i>Cyanistes caeruleus</i>
House Sparrow	<i>Passer domesticus</i>
Magpie	<i>Pica pica</i>
Robin	<i>Erithacus rubecula</i>
Song Thrush	<i>Turdus philomelos</i>
Wood Pigeon	<i>Columba palumbus</i>
Wren	<i>Troglodytes troglodytes</i>

Table 3

Amphibians

Within the application boundary there is an absence of suitable breeding opportunities for Great Crested Newt (*Triturus cristatus*) (GCN) and although there refuge/hibernacula opportunities the presence of this species is deemed highly unlikely. Ponds are absent within a 250 metre radius and the site is relatively isolated due to the surrounding roads and development that will act as a barrier to GCN. Due to the combination of the above elements no further surveys will be required in regards to GCN.

Risk to GCN:

In order to assess risk to the species a number of factors need to be considered, these include:

- Site proximity to 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 around the pond
- Area of site habitat loss
- Nature of habitat to be lost and its potential value to GCN as refuge/ overwintering habitat.

The nature of the development site accompanied by distance and isolation from potential breeding ponds indicates that there is no incentive for GCN at the site thus the potential for GCN to be present at the development site is deemed to be low.

The on site habitat is likely to be productive for other amphibians such as the Common Frog (*Rana temporaria*) which could utilise areas of refuge thus it is recommended that any vegetation that will be removed should be undertaken by hand and checks made for the presence frogs or toads; should they be present they should be carefully relocated out of harms way to a suitable like for like habitat.

PHASE 1 HABITAT SURVEY:

Habitats Present:

A2.2	Scattered Scrub
A3	Scattered Trees – Broadleaved & Coniferous
J1.2	Amenity Grassland
J1.3	Ephemeral/Short Perennial
J3.6	Buildings/Hardstanding

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

D	=	*Dominant
A	=	*Abundant
F	=	*Frequent
O	=	Occasional
R	=	Rare

*These values can be prefixed by the letter L (locally), to provide more subtle biogeographical data.

Habitat Descriptions:

All species nomenclature follows Stace, C. (1996) – definitive English names

(Refer to Map 1, Appendix 1 for the location of all described habitats)

Scattered Scrub

Areas of species-poor scattered scrub were present on site dominated by Bramble (*Rubus* sp.), Berberis (*Berberis* sp.), Silver Birch (*Betula pendula*) and Holly (*Ilex aquifolium*).

Scattered Trees – Broadleaved & Coniferous

Site boundaries are characterised by semi-mature broadleaved and coniferous trees, including Cherry (*Prunus avium*), Cypress (*Cupressus* sp.), Silver Birch (*Betula pendula*), Hawthorn (*Crataegus monogyna*) and Sycamore (*Acer pseudoplatanus*).

Amenity Grassland

The area of amenity grassland to the front and rear of the house is well maintained and extremely species poor, dominated by *Festuca* and *Lolium* hybrids; no other species occur except Common Cats-ear (*Hypochaeris radicata*).

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Ephemeral/Short Perennial

To the northern and southern site boundaries were areas of ruderal communities encroaching upon the area of hardstanding (car park). The ruderal fringes were relatively species rich and noted three regionally notable species including Bristly Ox-Tongue (*Helminthotheca echinoides*), Tall Ramping Fumitory (*Fumaria bastardi*) and Buckwheat (*Fagopyrum esculentum*). The distribution in North Wales for all three of these species is largely restricted and records tend to be extremely localised for all three species. See species list below in Table 4.

Scientific Name	Common Name	DAFOR
<i>Achillea millefolium</i>	Yarrow	O
<i>Anagallis arvensis</i>	Scarlet Pimpernel	O
<i>Arrhenatherum elatius</i>	False Oat Grass	O
<i>Cirsium arvense</i>	Creeping thistle	O
<i>Fagopyrum esculentum</i>	Buckwheat	R
<i>Fumaria bastardi</i>	Tall Ramping Fumitory	R
<i>Fumaria muralis</i>	Common Ramping Fumitory	R
<i>Helminthotheca echinoides</i>	Bristly Ox-Tongue	F
<i>Holcus lanatus</i>	Yorkshire Fog	O
<i>Medicago lupulina</i>	Black Medick	O
<i>Myosotis arvensis</i>	Field Forget-me-not	F
<i>Plantago major</i>	Great Plantain	R
<i>Poa annua</i>	Annual Meadow Grass	F
<i>Senecio jacobaea</i>	Common Ragwort	O
<i>Senecio vulgaris</i>	Groundsel	O
<i>Sinapis arvensis</i>	Charlock	R
<i>Solanum dulcamara</i>	Woody Nightshade	R
<i>Sonchus oleraceus</i>	Smooth Sow-Thistle	F
<i>Taraxacum</i> sp.	Dandelion sp.	O
<i>Urtica dioica</i>	Perennial Nettle	O
<i>Veronica arvensis</i>	Wall Speedwell	O
<i>Veronica persica</i>	Field Speedwell	R
<i>Vicia sativa</i>	Common Vetch	F

Table 4

Buildings/Hardstanding

There is one building as previously identified, situated to the east of the site, alongside a large area of hardstanding which comprises most of the survey area.

No invasive species were discovered on site however 5 injurious weeds were discovered as occasional on site in the form of: Broad Leaved Dock (Rumex obtusifolius), Curled Dock (Rumex crispus), Common Ragwort (Senecio jacobaea), Creeping Thistle (Cirsium arvense) and Spear Thistle (Cirsium vulgare).

Target Notes

TN1: Location of bat ingress opportunities on building

9.0 Conclusions & Recommendations

- 9.1 From the survey results it can be concluded that the residential dwelling to the east of the survey area is a confirmed bat roost; furthermore, the residential property possess high potential for roosting bats according to current BCT guidelines, (See Figure 6). Hence, it is therefore recommended that follow-up dusk emergence in relation to bats are conducted between the months of May - August to verify the species and numbers of bats occupying the residential building. In addition to the use of the building the dusk/dawn surveys should aim to establish if the trees/shrub/scrub is used for commuting/foraging purposes. Where bats or their roost will be affected by development/work, in this case the residential house at Ferndale Garden Centre, a European Protected Species Mitigation Licence will be required to legally allow the development/work to commence.

Table 7.3 Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).		
Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry survey ^a (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey. ^b	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn. ^b
^a Structures that have been categorised as low potential can be problematic and the number of surveys required should be judged on a case-by-case basis (see Section 5.2.9). If there is a possibility that quiet calling, late-emerging species are present then a dawn survey may be more appropriate, providing weather conditions are suitable. In some cases, more than one survey may be needed, particularly where there are several buildings in this category. ^b Multiple survey visits should be spread out to sample as much of the recommended survey period (see Table 7.1) as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more. A dawn survey immediately after a dusk one is considered only one visit.		

Figure 6

There is an absence of trees at which suitable ingress opportunities for bats exist; notwithstanding such absence areas of hedgerow and trees will act as valuable commuting and foraging resource for bats either as a stand alone feature or as a corridor into the wider countryside

It should be noted that where bat/s or their roost/place of rest/shelter will be affected by the proposed works, in this case the residential dwelling at Ferndale Gardens, then to allow work at the site to legally commence, an application for European Protected Species Mitigation Licence (EPSML) via Natural Resources Wales and subsequent granting of a licence will be required. Notwithstanding the granting of a licence works that would affect a roost cannot take place if a maternity colony is in occupation. It should also be noted that before an EPSML can be applied for all Planning issues including Consent and any pre-commencement Planning Conditions relative to bats should be resolved.

- A licence is needed if the consultant ecologist, on the basis of survey information and specialist knowledge of the species concerned, considers that on balance the proposed activity is reasonably likely to result in an offence under the Conservation of Habitats & Species Regulations 2010 (as amended)
- If the consultant ecologist, on the basis of survey information and specialist knowledge of the species concerned, considers that on balance the proposed activity is reasonably unlikely to result in an offence being committed then no licence is required.

However, in these circumstances Natural Resources Wales would urge that reasonable precautions be taken to minimise the effect on European Protected Species should they be found during the course of the activity. If European protected species are found, cease the work until you have assessed whether you can proceed without committing an offence.

- A licence should be applied for if offences are unavoidable and the work should not be re-started until a licence is obtained.
- The application should be completed by the developer and a consultant ecologist. The ecologist will need to be able to demonstrate to the satisfaction of Natural Resources Wales that they have the relevant skills and knowledge of the species concerned.

NB: Where more detailed bat surveys are recommended, following an initial investigation, then Local Authorities on the advice of their ecological advisors, may not determine the application until such time that all relevant information is gathered, i.e. by conducting dusk/dawn surveys. The advice that is provided by the ecological advisors is also in accordance with the obligations placed upon Local Authorities by way of its duties under the Conservation of Habitats & Species Regulations 2010 (as amended). Therefore it would be prudent to make enquiries to the relevant departmental Planning Officer before submitting a Planning Application that includes an ecological survey report that recommends more detailed surveys.

- 9.2 The overall nature of the site is considered to be of good quality for the foraging and commuting requirements of bats, particularly due to the structural variability created by its semi-natural features – notably tree and shrub. Installation of lighting as part of any future development, that exceeds current levels, may have a negative impact upon foraging/commuting bats, particularly if increased light spillage occurs in areas of that are currently free from illumination which includes the parameters of the site boundary.

If inappropriate and ill designed lighting is implemented then there is likely to be an adverse impact upon bats; see extract below from Bat Conservation Lighting Guidelines.

Type of lamp (light source)

The impact on bats can be minimised by the use of low pressure sodium lamps or high pressure sodium instead of mercury or metal halide lamps where glass glazing is preferred due to its UV filtration characteristics.

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, don't light.

- 9.3 There are no apparent implications in relation to Schedule 1 specially protected bird species. However, the presence of other more common bird species has been deemed likely as the site offers breeding opportunity for some passerine species, specifically where tree and shrub is present with both of these acting as both a foraging resource and nesting platform.

- 9.4 Thus, development or significant modification of the site resulting in loss of shrub/scrub and trees is likely to result in the loss or diminution of resource for breeding, foraging and nesting birds. If any trees or shrub are to be removed, it should be undertaken outside of the breeding season of birds (March - August) unless it can be conclusively established, by an ecologist, that nesting birds are absent.

NB: All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependant young are protected under the Wildlife & Countryside Act 1981 (as amended).

- 9.5 There is no suitable habitat for breeding GCN and the presence of this species at the site is deemed highly unlikely due to the lack of breeding ponds within a 250 metre radius alongside the fragmented nature of the immediate surrounding habitat. In the unlikely event that a newt is discovered, work should cease and an ecologist contacted as soon as possible.

- 9.6 The site itself does not support a rich and diverse flora, though as previously identified, there are three species of regional importance including: Bristly Ox-Tongue (*Helminthotheca echioides*), Tall Ramping Fumitory (*Fumaria bastardi*) and Buckwheat (*Fagopyrum esculentum*). These species have a highly restricted distribution within North Wales and though not considered on the regional BAP, should be considered as valuable from a conservation perspective.

All three species are ruderal and extremely hard to mitigate for, thus, it is recommended that as future proposals an area be identified to be sown with a native wildflower seed mix to compensate for the loss of botanical diversity. (See Appendix 3 suggestions of species mixes)

No invasives were on site though five injurious weeds in the form of: Broad Leaved Dock (*Rumex obtusifolius*), Curled Dock (*Rumex crispus*), Common Ragwort (*Senecio jacobaea*), Creeping Thistle (*Cirsium arvense*) and Spear Thistle (*Cirsium vulgare*).

- 9.6 As the habitat has been identified as offering possible foraging potential and shelter for hedgehogs, it is recommended that if any shrub/scrub or other dense vegetation is to be removed, it is done so in a careful manner to check for the presence of hedgehogs; additionally it is recommended that if hedgehogs are discovered during their most vulnerable time, i.e. during hibernation/breeding then they are to be left in situ, and the habitat retained around them. If they are in danger of being harmed then they should be carefully relocated to a suitable sheltered area away from the work.
- 9.7 Where open vertical-sided trenches are excavated it should be ensured that they are not left open overnight to avoid hedgehogs and small animals falling into them and becoming trapped. If trenches cannot be back filled after the working day planks of 150 mm wide should be placed in them to serve as an escape. Excavations should also be checked in the morning on a daily basis for the presence of any animals that may have fallen in during the night. 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.
- 9.8 If landscaping is proposed within the scheme then native species that will be beneficial to local wildlife should be selected to both improve biodiversity and formed to promote wildlife corridors from the site boundaries to the extending landscape.

10.0 Dusk Survey Methodology & Results

- When considering the survey protocol the decisions about whether dusk or dawn surveys are chosen are based on the extensive experience of the Tyrer Partnership, the nature of the building and species that can be anticipated as being present either at the property or in the locality and how complex a building is it relative to observations. Furthermore the nature of the immediate and extending landscape is also taken into consideration in context with bats.
- In this case the buildings are of a simple construction and present no problems for dusk observations, if a building is complex or observations were restricted or species that are difficult to detect at dusk are suspected then dawn surveys would be conducted. At this site it was considered that the presence of such species was unlikely.
- It should also be noted that at dawn temperatures are usually lower than at dusk as a result bat activity can, in some locations, be less frequent.
- Where singular/small numbers of bats are present and there are no survey constraints then dawn surveys are of no more value than dusk surveys; singular bats can and do return to a roost before dawn and as a result a dawn survey would not record them anyway.
- Dawn surveys are more productive when “back tracking” bat to a roost from foraging grounds

The above points are based upon over 35 years of bat surveying. Whilst the Tyrer Partnership is fully aware of the BCT guidelines they are as they state – guidelines.

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- 10.1 Relative to the nature and condition of the building on the land at Ferndale Garden Centre, New Broughton the residential building had been classified as offering high potential and is a confirmed roost for Pipistrelle bat. The survey effort was proportionate to that classification and the surveyor was located where bat roost potential was previously identified.
- 10.2 The dusk emergence observations undertaken on the 2nd and 21st August and 5th September 2017 were completed by Mr J Styles, an accredited agent on the license of Mr S. Irwin an experienced bat surveyor who holds a Natural Resources Wales bat disturbance licence 73156:OTH:CSAB:2016.
- 10.3 A single surveyor was located in a position where unrestricted views of the identified roost potential (West elevation) were achievable and decided by Mr J. Styles who undertook the daytime survey. (See Figure 6) The surveyor was aided with Anabat electronic detector to locate and record the high frequency calls that are emitted by bats. Echolocation calls were then analysed with computer software to verify field observations. Additionally, an Anabat electronic detector was placed inside the loft for the duration of the dusk survey dated 21st August 2017 and the pre-dusk inspection at this time found no increase in droppings.

Times of Survey	Date	Weather Conditions
Dusk survey 2100 – 2226	2 nd August 2017	Sunset: 2106: Dry, light breeze, 100% cloud cover Start temp: 17°C End temp: 14°C
Dusk survey 2005 - 2150	21 st August 2017	Sunset: 2030: Dry, calm, 100% cloud cover Start temp: 18°C End temp: 17°C
Dusk Survey 1928 - 2115	5 th September 2017	Sunset: 1955: Dry, light breeze, 5% cloud cover Start temp: 16°C End temp: 14°C

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Survey	Date	Results
Dusk survey	2 nd August 2017	Summary: Emergence of six Common Pipistrelle bats from under soffit board at western elevation of building. 2119 -2127 hrs: Six Common Pipistrelle bats emerged from under soffit board at the western elevation of building as identified in diurnal inspection. 2132 -2143 hrs: a single Noctule commuted into site from the east and continued to forage over all areas above the site. 2148 hrs: Noctule bat – no visual observations Foraging activity was occasional throughout the survey consisting of a maximum of one Noctule and two Common Pipistrelle bats.
Dusk Survey	21 st August 2017	Summary: Emergence of two Common Pipistrelle bats from under soffit board at western elevation of building. 2005 - 2008 hrs: 4 Noctule bats commuting from east to the north of the site. 2030 – 2047 hrs: Two Common Pipistrelle bats emerged from under soffit board at the west of the building. 2105 hrs: Common Pipistrelle commuting across from the north to the south. 2115-2130 hrs: Noctule bat – no visual observation Foraging activity was occasional throughout with a maximum number of 1 Common Pipistrelle bat and 4 Noctule bats.

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Dusk Survey	5 th September 2017	Summary: Emergence of two Common Pipistrelle bats from under soffit board to western elevation of building. 2020 – 2032 hrs: Two Common Pipistrelle bats emerged from under soffit board to west of building. 2045 – 2049 hrs: One Common Pipistrelle bat foraging within the garden to the south of the building. Foraging activity was highly sporadic throughout and consisted of a maximum of one Common Pipistrelle bat throughout the duration of the survey.
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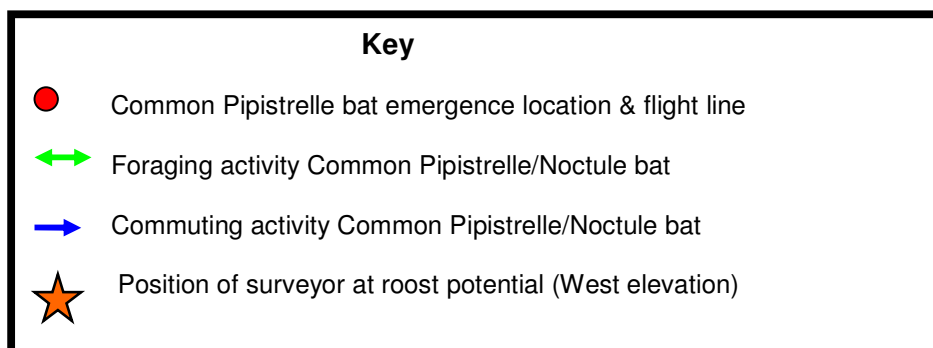
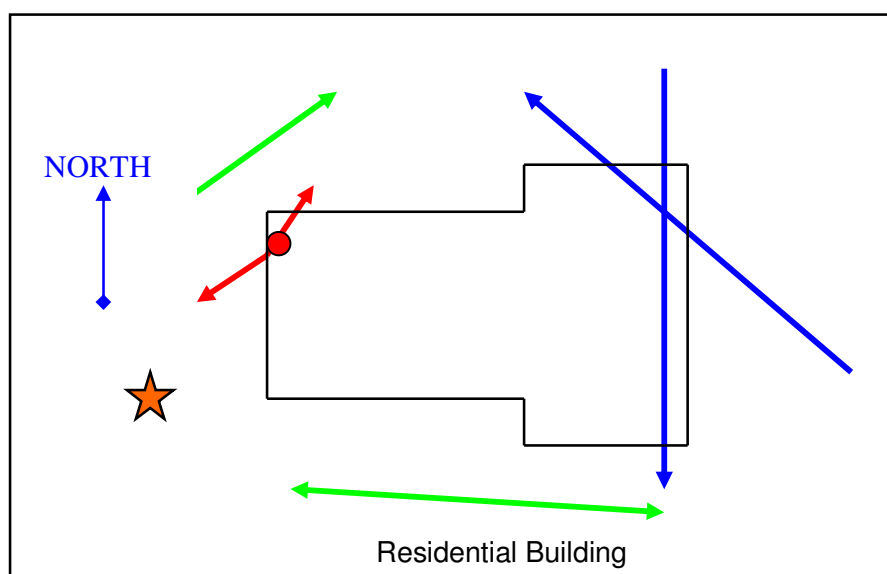


Figure 6: Bat Activity



Figure 7: Location of emergence from under soffit board of residential building

11.0 Dusk Conclusions & Recommendations

- 11.1 From the 2017 dusk survey results it can be concluded that the building at Ferndale Garden Centre is being used as a roost by a small number of Common Pipistrelle bats. (Figure 7) Relative to the classification, the survey results indicate that currently the Pipistrelle roost is not in sufficiently high numbers or consistency to classify it as a typical maternity roost. Therefore, for mitigation purposes, the roost is classified as a day roost for Common Pipistrelle.

The destruction, obstruction or modification of a bat roost will need to be addressed from both a conservation and legal perspective along with the application of appropriate mitigation. A European Protected Species Mitigation Licence (EPSML) will be required to legally destroy a place that is used for rest or shelter (roost) by bats; however before a licence can be applied for all planning issues need to be resolved.

In order that the LPA can implement its obligations under the Habitat & Species Regulations 2010 (as amended) appropriate and proportionate mitigation will need to accompany the planning application which will demonstrate that the “*favourable conservation*” of the species concerned can be maintained.

12.0 Indicative Mitigation

- 12.1 From the evidence gained during the dusk and diurnal observations, the use of the building by bats is considered to be low level; the proposed indicative mitigation is proportionate to that use. However, if at anytime that assessment is revised to a higher level then the mitigation will also be accordingly revised.

- 12.2 The following procedures and indicative mitigation are designed to allow the Local Planning Authority in association with their ecological adviser to determine a Planning Application where a European Protected Species has been identified and will be affected by the work for which the Planning Application seeks consent. In addition Local Planning Authorities in accordance with the obligations placed upon them by way of their duties under the Conservation of Habitats & Species Regulations 2010 (as amended) have to take into consideration the presence of a European Protected species before determination of an application where it/they have been identified.
- 12.3 The LPA need to consider the mitigation in relation to the potential success of a Natural England Mitigation licence application and/or if in their opinion the mitigation is considered as being appropriate or if it is over and above what is required; if they determine that the mitigation is appropriate then a Planning Condition should be attached requiring the mitigation to be implemented. If the LPA consider that the mitigation is over what is necessary but require “enhancement” as part of Local Biodiversity Policies this should be included in the terms of Consent. The acting bat ecologist deems the mitigation as appropriate and not over and above what is required.
- 12.4 Notwithstanding that Planning Consent is granted or equally if the work is undertaken outside of the planning system whereby projects that do not require planning consent may affect bats or their roost, including disturbance, it does not absolve the applicant, site owner, developer or any other party involved with the work from ensuring that an application is made for a Natural England Mitigation licence to legally undertake work that will affect bat(s) or their roost/place of shelter. If work is undertaken without a licence and bat/s or their roost/s is/are affected then a breach of current wildlife legislation will occur for which penalties are high.
- 12.5 Under Regulation 53(1) and 56(3) (a) of the Conservation of Habitats & Species Regulations 2010,(as amended) a licence is required prior to disturbing bats or destroying/damaging or obstruction any place that is used by bats as a breeding site or resting place; the licence is issued by the EPS Licensing Team of Natural Resources Wales.

Summary of Indicative Mitigation

- The planning application is currently Outline, therefore final drawings of individual elevations have not been produced; therefore mitigation is indicative. The development has the potential to reduce foraging habitat for bats therefore landscaping with native tree/shrubs will be implemented to consolidate habitat on the proposed site boundaries. However; the existing east and west boundary tree lines will be retained as bat roost provision will be located to the west and both tree lines provide foraging/commuting habitat.
- To ensure that bats are not left without a roost while the work takes place, two Schwegler 2F bat boxes will be erected on a mature tree within the site boundaries away from the main work area to act as a receptor if bats have to be captured during the work schedule but will be indefinitely retained during and after the work schedule. Permanent roost provision will be installed during the construction period.

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- Ecologist is to undertake induction on possible bat presence and documents that form the license i.e. License, Method Statement to be kept on site for the duration of the work. Once an EPSML licence is in place the contractor will provide a safe means of access to allow the ecologist to investigate all roost potential for bat presence at the building at Ferndale Garden Centre
- As a precaution licensable work to be undertaken when bats are not within the hibernation season, which is broadly October-March. Prior to any work being undertaken the ecologist will establish the presence/absence of bats, by undertaking detailed investigation of the areas at which bats have been located at the residential building; typically under soffit boards or at wall-plate level to the western elevation. The most effective way of undertaking this investigation is by carefully removing roof tiles at the roof verge, which will then give visual access to the cavity wall, gaps behind the fascia and soffit board. The ecologist is to supervise all roof tile removal; if prior to the detailed investigation, the presence of a maternity roost is suspected work will not commence and updated dusk surveys to be conducted.
- All dismantling of roost features will be undertaken during favourable weather conditions
- In the unlikely event that bats are found outside of supervision time, then as legal requirement and conditions of the licence work will immediately cease and the ecologist contacted for further advice; contractors must not touch, handle or in any way cause bats to move
- Whilst lighting will be greater than what currently exists and where installed is to be directed away from bat roost access points or foraging areas on the site boundaries.
- Mitigation subject to the approval of the Local Authority and Natural Resources Wales
- The roost provision at the newly constructed property will be dedicated for bats and permanent. (see Figure 8 & 9)
- The roost will be permanent and dedicated for bats and located adjacent to the west boundary tree line that will be retained; the bat box cannot be used for any other purpose. Management requirements for the roost are considered absent.
- 1F bitumen roofing underfelt to be used at Plot 8 as opposed to breathable membrane, which has potential entanglement problems for bats.
- The dusk surveys to be updated if work is scheduled beyond April 2018

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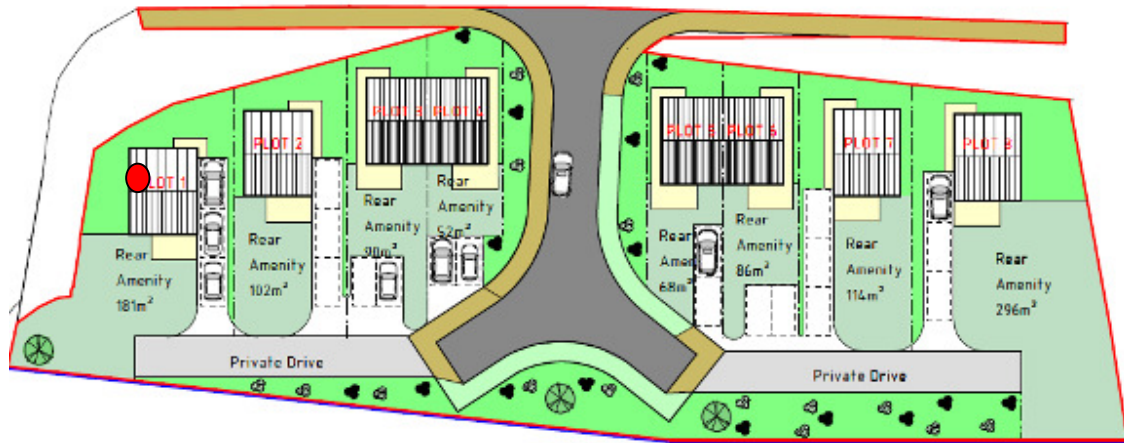


Figure 8: Proposed location of bat roost provision
 Western gable elevation of Plot 1

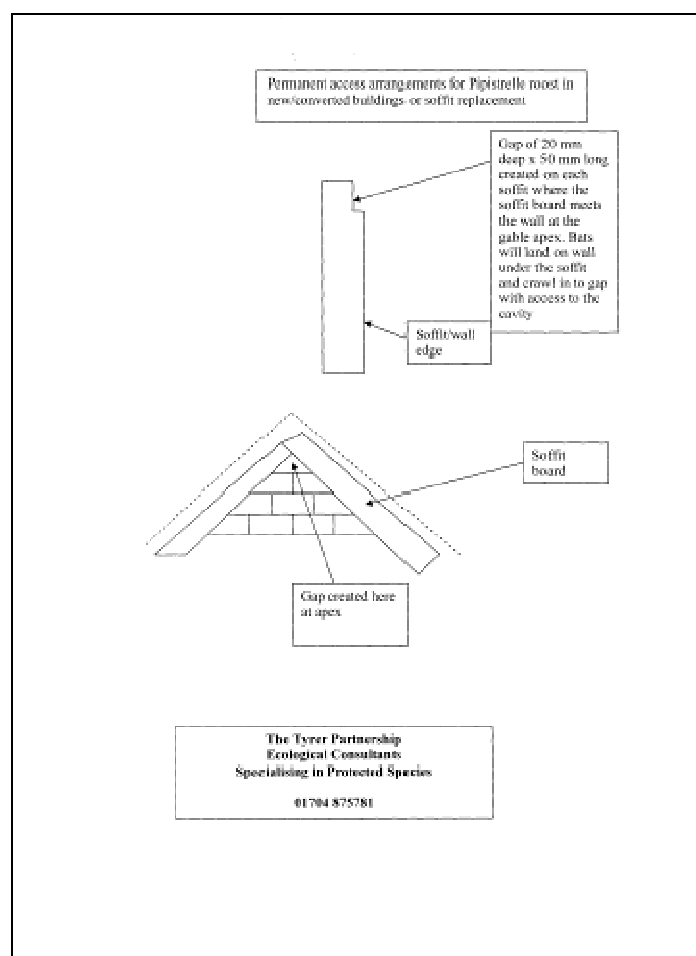


Figure 9: Roost Detail

Appendix I – Phase 1 Habitat Map



Habitat Key

	Survey boundary		Amenity grassland
	Scattered scrub		Hardstanding
	Scattered trees - broad-leaved		Building
	Scattered trees - coniferous		Target note

Appendix II – Site Photographs



Overview of Garden Centre



Rear elevation of residential property

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Front elevation of residential property



Side elevation soffits- close fitting to walls

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Roof & ridge tiles-close fitting



Potential ingress gap at western elevation roof verge



Potential ingress points at western elevation soffit



Restrictive truss roof design



Bitumen underfelt



Accumulation of Pipistrelle droppings at internal west gable elevation

Appendix III – Wildflower Mix

Wildflowershop offers a range of specialised seed mixes available for the creation of wildflower areas. The most site appropriate mix for Ferndale Garden Centre would be the 'Butterfly Mix' as labelled below and can be purchased here:
<http://www.wildflowershop.co.uk/WF%20Seed%20Collections/wf%20butterfly%20seeds.htm>

All wild plant seeds are of British native origin and seeds should be sown onto bare soil from 1.5 grams per square metre depending on the density of flower required. Species within the mix include:

- Lady's Bedstraw (*Galium verum*)
- Common Bird's Foot Trefoil (*Lotus corniculatus*)
- Salad Burnet (*Sanguisorba minor*)
- White Campion (*Silene latifolia*)
- Wild Carrot (*Daucus carota*)
- Common Catsear (*Hypochaeris radicata*)
- Meadow Cranesbill (*Geranium pratense*)
- Rough Hawkbit (*Leontodon hispidus*)
- Common Knapweed (*Centaurea nigra*)
- Greater Knapweed (*Centaurea scabiosa*)
- Musk Mallow (*Malva moschata*)
- Dark Mullein (*Verbascum nigrum*)
- Oxeye Daisy (*Leucanthemum vulgare*)
- Ribwort Plantain (*Plantago lanceolata*)
- Field Scabious (*Knautia arvensis*)
- Selfheal (*Prunella vulgaris*)
- Perforate St.Johns Wort (*Hypericum perforatum*)
- Kidney Vetch (*Anthyllis vulneraria*)
- Tufted Vetch (*Vicia cracca*)
- Yarrow (*Achillea millefolium*)
- Yellow Rattle (*Rhinanthus minor*)