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Land at Mulsford Lane, Worthenbury, Wrexham LL13 0FD
National Grid Reference: SJ 42172 46052

Preliminary Ecological Appraisal

Prepared for:

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Land at Mulsford Lane, Worthenbury, Wrexham LL13 0FD

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Summary

A planning application regarding the land at Mulsford Lane, proposes the construction of one residential dwelling within the existing area of semi-improved grassland. 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 June 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 small sized plot, which comprises of hedgerow and a main area of species-poor semi-improved grassland.

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

Plants: The site is species-poor throughout and contained no regionally or nationally notable species of conservation importance. There are also no implications with invasive species as no invasive species as listed under Schedule 9 of the Wildlife & Countryside Act (1981) (as amended) are present on site.

There are three injurious weeds that were infrequent on site in the form of Creeping Thistle (*Cirsium arvense*), Broad-Leaved Dock (*Rumex obtusifolius*) and Common Ragwort (*Senecio jacobaea*).

Bats: There are no buildings within the surveyed site boundary and the singular semi-mature tree just outside of the site boundary to the north, in the form of the Pedunculate Oak, (*Quercus robur*) was assessed as possessing negligible bat roost potential. Therefore, no further surveys in relation to bats are necessary.

Birds: During the site walkover, no historic nests were located on site although the areas of hedgerow to the site boundaries could act as a viable platform for nesting bird species. The report will recommended that if the 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 hedgerow 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.

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Animal runs through the site were present however; it is deemed that these are of domestic cat/fox origin. No recent Badger activity was found on the site (such as grubbing, setts, etc) or close to the site boundaries although it is possible that Badger may use the site for commuting/foraging purposes.

Amphibians: The presence of Great Crested newt (GCN) on the site is possible as the area is a part of a large network of ditches and ponds with suitable areas throughout the site for foraging and commuting GCN although opportunities for hibernation are absent. The habitat is also likely also to be productive for foraging by other amphibians, such as the common frog. Based on the survey results the report will recommend that access is sought to assess any ponds within 250 metres of the site and from that assessment, an opinion will be formed as to whether or not presence/absence surveys of such ponds will be required.

A 2 km data search was obtained from "Cofnod" along with Magic Mapping information is considered to be a reasonable level of information for report inclusion. This identified several specially protected species including Water Vole, several bat species, Barn owl and Otter; however given the relatively small scale development it is unlikely that these species will be affected by the proposed work.

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1.0 Introduction & Reason for Survey

- 1.1 A planning application regarding the land at Mulsford Lane, Wrexham, proposes to clear the land followed by the construction of a single residential dwelling. 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 June 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

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1.2 The basic objective of the survey was to ascertain the nature of the land 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.

2.0 UK Biodiversity Plans

2.1 Section 7 of the Environment Act (2016) provides an updated version of the United Kingdom Biodiversity Action Plan (in Wales) 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>
Great Crested Newt	<i>Triturus cristatus</i>
Common Toad	<i>Bufo bufo</i>
Garden Tiger	<i>Arctia caja</i>
Cinnabar Moth	<i>Tyria jacobaeae</i>

Table 1 – S.7 species likely to be in the immediate locality although not necessarily at the site

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 Bramble (*Rubus* sp.), Dog Rose (*Rosa canina*) and Pedunculate Oak (*Quercus robur*).

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, no habitats would classify as a local BAP habitat in the WBAP; however four species listed on the WBAP could potentially use the site which includes:-

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

Table 2

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.
- 4.3 Great Crested newts (*Triturus cristatus*) have declined within the UK over recent years, due to the destruction and pollution of their breeding sites and terrestrial habitat. They spend a high percentage of their adult life in a terrestrial habitat and often hibernate under log piles or amongst general rubble. GCN's are protected under the Wildlife and Countryside Act 1981(as amended) and the Conservation of Habitats & Species Regulations 2010 (as amended). It is illegal to catch, possess or handle Great crested newts without a licence and it is also illegal to cause them harm or death, or to disturb their habitat in any way. North East Wales provides a stronghold for this species

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 to include all protected species and designated sites within a 2km radius of the study site was also requested from Cofnod to provide further and otherwise unobtainable information concerning species and their local distributions.

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Field Survey

- 5.3 The survey was conducted on the 27th May 2017, by Mr J. Styles BSc Ecology, a highly experienced botanist with a FISC level 5, and Mr S. Irwin an experienced bat surveyor who holds a Natural Resources Wales bat disturbance licence 73156:OTH:CSAB:2016. Mr Irwin, who is director of The Tyrer Partnership, has assessed the results, conclusions, and recommendations and his assessment concurs with that of Mr Styles.



Figure 3: Approximate site location within the contiguous landscape

- 5.4 The single tree located just outside of the site boundary to the north, was 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. It was 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 of fissures that may provide access into further cavities within the tree/s.

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

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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: BCT guidelines extract

5.5 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.

5.6 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.

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

5.8 The walkover included the identification of species present and the site was assessed for its capability to support species that may be of particular interest or protected under current wildlife legislation in addition to the presence of invasive species.

6.0 Constraints

- 6.1 The tree to the north of the site was assessed at a time when foliage is present, which at times, can impede the surveyor's view of the entire tree when assessing a tree in relation to bats. However, a sufficient level of inspection was achievable relative the identification of bat roost potential.
- 6.2 Having considered the constraints in the context of the site 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 The land at Mulsford Lane are located in the rural village Worthenbury at approximately 9.6km south-east of Wrexham city centre. It is a relatively small plot, which comprises of species-poor semi-improved grassland with hedgerow to all boundaries of the site.
- 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 lines of trees connecting areas. There were several notable features including areas of woodland as listed on the national forestry inventory directly to the north-east and the River Dee (SSSI) situated approximately 1 kilometre to the north-west of the site.
- 7.3 There are 30 ponds within a 1 kilometre radius the closest of which is located at approximately 145 metres east of the site. The previously identified habitats can be considered as being of value for many of the species for which the survey was undertaken, subject to them being present in the locality. Where opportunities for ingress exist for bats in close proximity to good habitat, the probability of occupancy hence increases.
- 7.4 The site is also appears to be located within the impact zone for the River Dee (SSSI, SAC) and Well Rough & Long Plantation (SSSI) situated approximately 1 and 3 kilometres away, respectively. Notwithstanding the presence of the above it is considered that as a result of the proposed development no impact will occur on the protected areas or the qualifying species for which they are designated.
- 7.5 The Cofnod data search resulted in numerous records, of specially protected species, in proximity to the site including several bat species, Water vole, Otter and Badger; however; none were sufficiently close enough to the site to raise concerns.

8.0 Field survey results

Bats

There is an absence of built structures or trees at the site therefore opportunities for bats are absent; notwithstanding such absence areas of hedgerow will act as valuable commuting and foraging resource for bats either as a stand alone feature or as a corridor into the wider countryside. The assessment of the tree just outside of the north boundary resulted in a "Negligible" classification.

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Terrestrial Mammals

During the search of the land encompassed within or close to the site boundary, no evidence of recent Badger presence such as grubbing holes, latrines, footprints, day nests or scratching areas were found. Animal runs were noted through the site, however, these are deemed to be of domestic Cat/Fox origin.

It is deemed likely that hedgehogs could be present on the site due to the presence of suitable foraging habitat.

Breeding birds

No historic nests were located during the site survey. This being said, there were abundant areas in the form of hedgerow that could act as a platform for nesting birds. During the site visit several bird species were encountered (see table below) although not the habitat is not viable for the nesting purposes of all.

<u>Common name</u>	<u>Scientific name</u>
Blackbird	<i>Turdus merula</i>
House Sparrow	<i>Passer domesticus</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 – Bird species encountered during site visit

Amphibians

The presence of Great Crested newt (GCN) on the site is possible as the area is a part of a large network of ditches and ponds with suitable areas throughout the site for foraging and commuting although opportunities for hibernation are absent. The level of connectivity between the aforementioned habitat will greatly increase the likelihood of GCN presence in the area (see Figure 5). Additionally, there are corridors of suitable foraging habitat directly on and adjacent to the site for GCN in the form of hedgerow and grassland of an average height of 40 centimeters. The habitat is also likely also to be productive for foraging by other amphibians, such as the common frog.

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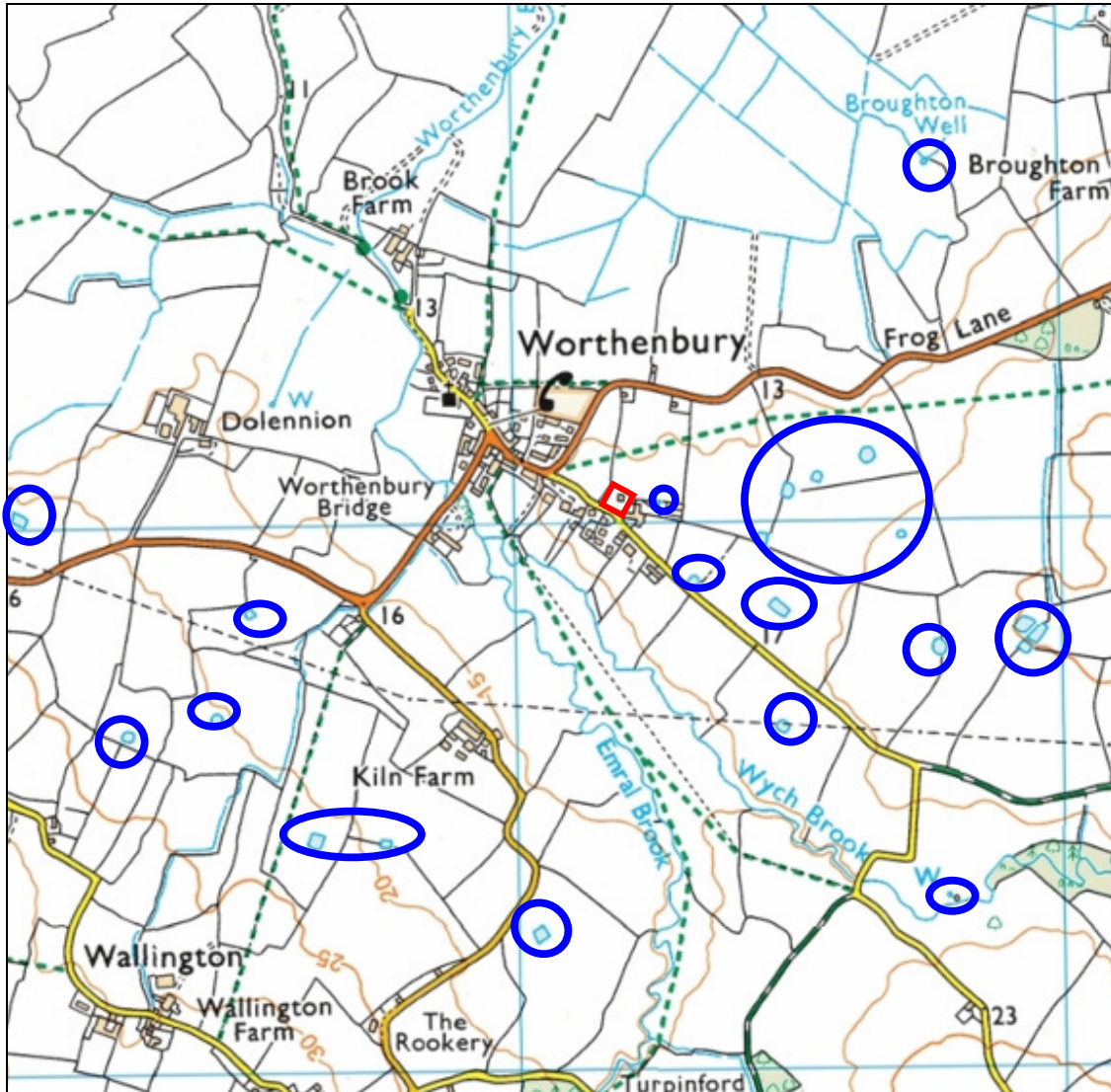


Figure 5 –  Pond clusters ranging between 150 – 975 metres away from study site

 Approximate location of study site

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.

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PHASE 1 HABITAT SURVEY:

Habitats Present:

- A3.1 Scattered Trees (Broad-Leaved)
- B6 Species-Poor Semi-Improved Grassland
- J2.1 Native Hedgerow

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 Figure 6, Appendix 1 for the location of all described habitats)

Scattered Trees (Broad-Leaved)

There was a single tree on site in the form of a semi-mature Pedunculate Oak (*Quercus robur*).

Species-Poor Semi-Improved Grassland

The central semi-improved grassland matrix of the site was extremely species-poor. A comprehensive site species can be found in Table 4 below.

<u>Scientific Name</u>	<u>Common Name</u>	<u>DAFOR</u>
<i>Alliaria petiolata</i>	Garlic Mustard	R
<i>Anthriscus sylvestris</i>	Cow Parsley	O
<i>Calystegia sepium</i>	Hedge Bindweed	O
<i>Centaurea nigra</i>	Black Knapweed	R
<i>Cirsium arvense</i>	Creeping Thistle	O
<i>Crataegus monogyna</i>	Hawthorn	F
<i>Dactylis glomerata</i>	Cocksfoot	F
<i>Elytrigia repens</i>	Couch	F
<i>Galium aparine</i>	Cleavers	R
<i>Heracleum sphondylleum</i>	Hogweed	O
<i>Holcus lanatus</i>	Yorkshire Fog	F
<i>Lapsana communis</i>	Nipplewort	O
<i>Prunus avium</i>	Wild Cherry	R

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<i>Quercus robur</i>	Pedunculate Oak	R
<i>Ranunculus acris</i>	Meadow Buttercup	R
<i>Ranunculus repens</i>	Creeping Buttercup	O
<i>Rosa canina</i>	Dog Rose	R
<i>Rubus</i> sp.	Bramble sp.	O
<i>Rumex obtusifolius</i>	Broad-Leaved Dock	O
<i>Sambucus nigra</i>	Elder	O
<i>Senecio jacobaea</i>	Ragwort	R
<i>Sisymbrium officinale</i>	Hedge Mustard	R
<i>Stachys sylvatica</i>	Hedge Woundwort	R
<i>Taraxacum</i> sp.	Dandelion sp.	R
<i>Urtica dioica</i>	Perennial Nettle	R
<u>Bryophytes</u>		
<i>Brachythecium rutabulum</i>		O
<i>Rhytidiadelphus squarrosus</i>		O

Table 4 – Site botanical species list

Native Hedgerow

Site boundaries are characterized by hedgerow comprising mainly Hawthorn (*Crataegus monogyna*) with occasional Bramble (*Rubus* sp.) and Dog Rose (*Rosa canina*).

9.0 Conclusions & Recommendations

- 9.1 There is an absence of trees/built structures at the site therefore roost opportunities for bats does not exist; notwithstanding such absence areas of hedgerow will act as valuable commuting and foraging resource for bats either as a stand alone feature or as a corridor into the wider countryside
- 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 hedgerow. 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.

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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. 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. In relation to birds that are using the buildings then similarly the work should be undertaken outside of the main bird breeding season unless prior to the breeding season birds can be prevented for occupying the building/s.

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).

- 9.4 Although the site has no suitable habitat for breeding Great Crested Newts (GCN), due to the highly connected nature of the surrounding landscape and the presence of two ponds within a 250 metre, the presence of this species at the site is possible. Based on the survey results it is recommended that access is sought to assess any ponds within 250 metres of the site and from that assessment, an opinion will be formed as to whether or not presence/absence surveys of such ponds will be required.

- 9.5 The site itself consists of mostly species-poor semi-improved grassland where species diversity is low (see Table 4).

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

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- 9.6 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 site biodiversity and formed to promote wildlife corridors from the site boundaries to the extending landscape.

Appendix I – Phase 1 Habitat Map



Habitat Key

- | | |
|--|--|
|  Survey boundary |  Poor Semi-Improved Grassland |
|  Scattered trees - broad-leaved |  Target note |
|  Native Hedgerow | |

Appendix II – Site Photographs



-View of the site from entrance showing grassland, hedgerow and tree to the north



Grassy sward and hedgerow providing potential commuting/foraging/refuge habitat for GCN

Land at Mulsford Lane, Worthenbury, Wrexham LL13 0FD
Preliminary Ecological Appraisal



Hedgerow dominated by Common Hawthorn (*C. monogyna*)

Appendix III – Data Search

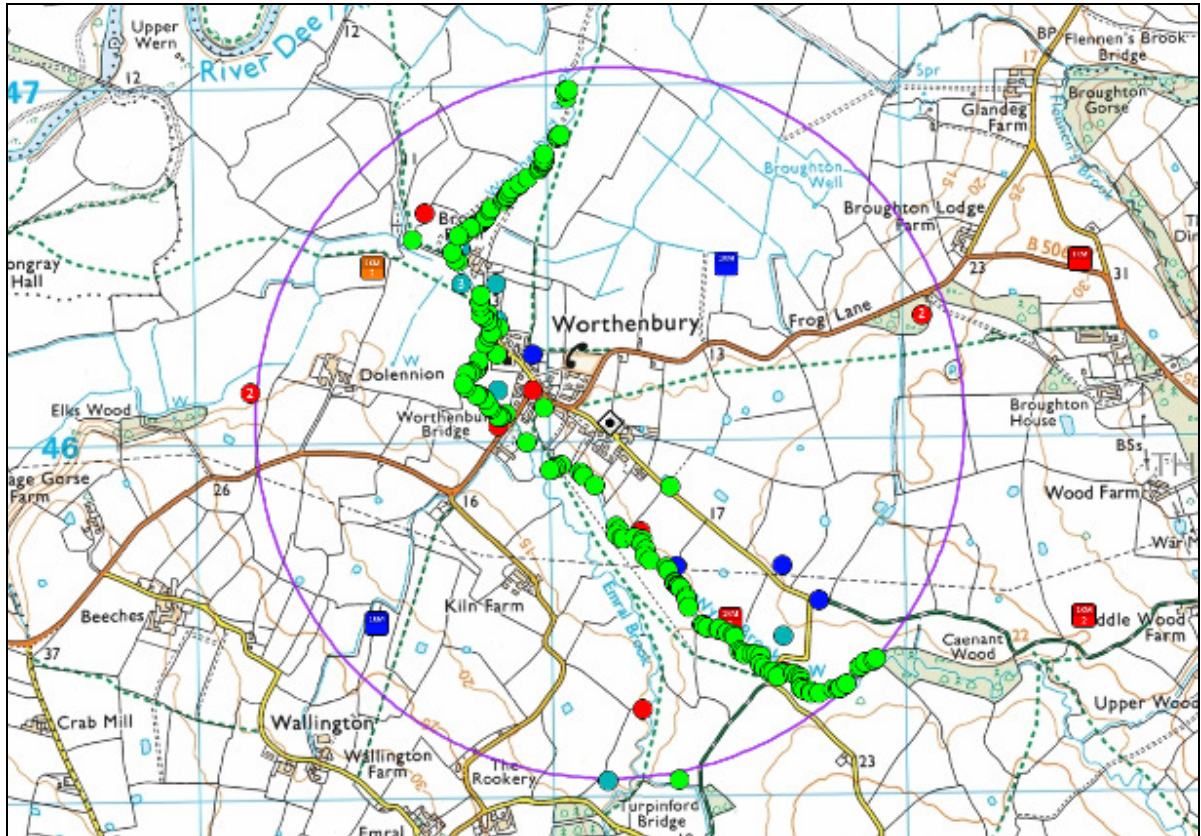


Figure 10 – Data search results showing local records of invasive, European Protected, s.41 and regionally uncommon species