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**PROPOSED DEVELOPMENT
LAND TO REAR OF WILLOW COTTAGES
GLAN-LLYN ROAD
BRADLEY
WREXHAM
LL11 4AY**

BUILDING DEVELOPMENT

PRELIMINARY ECOLOGICAL APPRAISAL

Report by:

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Client	Jonathan Humphreys
Planning Authority	Wrexham County Borough Council
Grid Reference	SJ32385380
Dates of Surveys	6 and 14 July 2022
Reference	072022/PEA/JH



PRO3755



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1.0 SUMMARY

The site is located at Grid Reference SJ32385380. The site is located in Bradley, approx. 3.2km to the North of the town of Wrexham. Mold Road (A541) is located some 600m to the West of the site. The Wrexham Bypass (A483) is some 1.6km to the East. The River Alyn is located some 600m to the East, with other small watercourses in the locality. Hall Wood is some 200m to the North.

The development proposal is to erect 1 No. new residential dwelling on the site, with associated access driveway and soft landscaping. New tree and hedge planting will compensate for the loss of any trees/hedges/scrub to be removed.

The Cofnod Data Request (E08020) provided information regarding Priority Species within a 1km radius of the site. Due to the sensitivity of the data, specific records for protected species cannot be disclosed, but there are records of Priority Species mammals (bats) and amphibians (common frog, common toad, great crested newt, palmate newt, smooth newt), within 1km radius of the site. There are records of non-native invasive plant species (Giant Hogweed, Himalayan Balsam, Himalayan Cotoneaster, Japanese knotweed, Rhododendron, wall cotoneaster) within 1km radius.

The hedges and trees have high potential for nesting birds and provide valuable flight-lines for foraging/commuting bats. They support a range of invertebrates, which provides a good food-source for birds and for foraging bats. The hedges [J2.1] have very limited potential to be used by amphibians, for foraging and emigration corridors. The amenity grass [J1.2] has very low potential for foraging amphibians, due to the grass being mown to a short swathe, so does not provide sufficient cover and would leave these species prone to predators.

The hedges on site do not have sufficient woody species or associated features to qualify as 'important' with regards to the Hedgerow Regulations 1997, made under Section 97 of the Environment Act 1995 which came into effect 1 June 1997.

Sections of hedge, some trees and some grass vegetation will need to be removed, to facilitate the proposed development, which will result in some loss of habitat. A post-construction landscaping scheme including new tree, shrub and hedge planting, should be prepared for the proposed development, as mitigation and to enhance the site. Further biodiversity enhancement could be achieved by installing bat boxes and bird nesting boxes in the mature trees and/or incorporating bat-friendly features into the proposed dwellings, to provide suitable alternative roosting sites. Provision of artificial hibernacula and hedgehog houses would benefit amphibians/reptiles and hedgehogs. Provision of basking areas (e.g. piles of natural rock or small sections of dry stone wall in South or West-facing grassy areas) would benefit reptiles. Reasonable Avoidance Measures (RAM) should be used to protect protected species (see separate documents).

By using mitigation and Reasonable Avoidance Methods (RAM), the proposed development should have no detrimental effect on the favourable conservation status of bats, great crested newts and other amphibians. RAM statements will be provided in separate documents.



2.0 INTRODUCTION

Stephen Cutmore, a licensed bat worker (NRW[S087991/1], NE[2015-16936-CLS-CLS]), and licenced Amphibian Worker (NRW[78772a: OTH: SA: 2018], NE[2016-19908-CLS-CLS]) was instructed by Jonathan Humphreys, to carry out a Preliminary Ecological Appraisal of the site to the rear of Willow Cottages, Glan-Llyn Road, Bradley, Wrexham, LL11 4AY. The purpose of the survey was to identify habitats present, assess the conservation value of the survey area, the likely presence of rare or protected species, to identify any features, habitats or species which would constitute potential constraints to any development which might take place and to make recommendations for mitigation and/or further survey work as appropriate.

2.1 Site Location

The site is located at Grid Reference SJ32385380. The site is located in Bradley, approx. 3.2km to the North of the town of Wrexham. Mold Road (A541) is located some 600m to the West of the site. The Wrexham Bypass (A483) is some 1.6km to the East. The River Alyn is located some 600m to the East, with other small watercourses in the locality. Hall Wood is some 200m to the North.

2.2 Site Description

The site is currently the rear garden to 3-4 Willow Cottages. The site is level and primarily comprised of amenity grass lawn, with mature trees, shrubs and hedgerows growing on the site boundaries.

2.3 Proposed development

The development proposal is to erect 1 No. new residential dwelling on the site, with associated access driveway and soft landscaping. New tree and hedge planting will compensate for the loss of any trees/hedges/scrub to be removed.

3.0 METHODOLOGY

3.1 Preliminary Ecological Appraisal

The site was surveyed on the 6 July 2022, in accordance with the JNCC methodology (2010) in order to produce a Phase 1 habitat map. Target notes with supplementary information or identifying the potential for protected species are also given.

The value of the site for protected species (bats, great crested newts, reptiles etc.) and habitat features was also assessed. A search was also made for signs of invasive non-native plant species such as Japanese Knotweed.

Any hedgerows present were surveyed to determine if any of the hedges meet the requirements of important hedgerows under the 1997 Hedgerows Regulations.



3.0 METHODOLOGY (continued)

3.2 Desk study

The 1: 25000 Ordnance Survey map covering the site and aerial photos accessed from the internet, were scrutinised to initially assess the wildlife value of the proposed development site and surrounding habitat at a basic level. This involved looking for any semi-natural habitat that may be of value to wildlife (e.g. woodland, parkland, hedges, ponds, rivers, wetland, with interconnecting habitat links. A data search request for Priority Species and designated wildlife sites within a 1km radius of the site request was made to Cofnod (Local Records Centre) (www.cofnod.org.uk).

4.0 SURVEY LIMITATIONS

This is solely an ecological survey report and cannot comment on topics outside this discipline. If additional advice is required, it is strongly recommended that other professionals are consulted.

- 1) information contained in this report covers only the site that was examined:
- 2) the inspection is limited to visual examination of the site.
- 3) there is no warranty or guarantee, expressed or implied, that Protected Species may not utilise the site after the survey has been completed, that are not discovered utilising the site during the inspection. This report gives an assessment of the suitability of the habitats on the site to support Protected Species, to determine if there is a the need for further surveys.
- 4) this report has been prepared for the sole use and benefit of the client. Any liability of Stephen Cutmore Arboricultural & Ecological Services shall not be extended to any third party.



5.0 SURVEY RESULTS

5.1 Desk Study

The Cofnod Data Request (E08020) provided information regarding Priority Species within a 1km radius of the site. Due to the sensitivity of the data, specific records for protected species cannot be disclosed, but there are records of Priority Species mammals (bats) and amphibians (common frog, common toad, great crested newt, palmate newt, smooth newt), within 1km radius of the site. There are records of non-native invasive plant species (Giant Hogweed, Himalayan Balsam, Himalayan Cotoneaster, Japanese knotweed, Rhododendron, wall cotoneaster) within 1km radius.

Designated sites within 1km radius of the site include:

- Wildlife Sites: Alyn Waters, Bryn Alyn and Wormswood, Woodlands and Fishpond.
- Alyn Waters Local Nature Reserve
- Several Ancient Semi Natural Woodland Sites and Restored Ancient Woodland Sites.

Other designated sites within 10km radius of the site include:

Afon Dyfrdwy [SSSI/SAC], Brymbo Fossil Forest [SSSI], Chwarel Singret [SSSI], Coed Talon Marsh [SSSI], Gatewen Marsh [SSSI], Johnstown Newt Sites [SAC], Llandegla Moor [SSSI], Llay Bog [SSSI], Marford Quarry [SSSI], Midland Meres and Mosses [RAMSAR Phase 2/SSSI], Old Pulford Brook Meadows [SSSI], Ruabon/Llantysilio Mountains and Minera [SSSI], Sontley Marsh [SSSI], Stryt Las a'r Hafod [SSSI], Vicarage Moss [SSSI].

5.2 Habitats

For the purposes of accurate habitat survey, the site can be divided into five distinct areas (marked and target noted on the plans).

Target Notes

A1.2: Amenity grass. Provides low potential for amphibians/reptiles for foraging, due to the grass being mown to a short swathe, which would leave these species prone to predators.

A3.3: Hedges and scattered trees. Provides potential habitat for nesting birds and a food-source for birds and foraging/commuting bats. There is low potential to be used by GCN for foraging and emigration corridors, due to lack of taller vegetation cover to provide cover.

J2.1: Conifer hedge. Provides potential habitat for nesting birds.

J3.6: Garage buildings. Provides low potential for roosting bats.

J5: Hardstanding. Has no potential for wildlife.

Piles of rubble. Provides potential habitat for hibernating amphibians/reptiles.



5.0 SURVEY RESULTS (continued)

5.2 Habitats

The wild plant list for Area A comprises:

A3.3: Hedges and scattered trees:

Apple (*Malus domestica*), Bramble (*Rubus fruticosus*), Broadleaved Dock, Campbell's Magnolia (*Magnolia campbellii*), Common Yew (*Taxus baccata*), Couch-grass (*Agropyron repens*), Cuckoo-pint, Damson (*Prunus domestica* subsp. *insititia*), Ground Elder (*Aegopodium podagraria*), Hazel (*Corylus avellana*), Holly (*Ilex aquifolium*), Ivy, Pear (*Pyrus communis*), Plum (*Prunus domestica*), Spotted Laurel (*Aucuba japonica*), Stinging Nettle (*Urtica dioica*), Western Red Cedar, White Willow (*Salix alba*), Wild Cherry (*Prunus avium*).

J2.1: Conifer hedge:

Ivy (*Hedera helix*), Western Red Cedar (*Thuja plicata*).

J1.2: Amenity grass:

Broadleaved Dock (*Rumex obtusifolius*), Creeping Buttercup (*Ranunculus repens*), Cuckoo-pint (*Arum maculatum*), Daffodil (*Narcissus pseudonarcissus*), Daisy (*Bellis perennis*), Dandelion (*Taraxacum officinale*), Moss (*Brachythecium rutabulum*), Perennial Rye-grass (*Lolium perenne*), Ribwort Plantain (*Plantago lanceolata*).

See maps in Appendix 1 and photographs in Appendix 2. For ranking of abundance (DAFOR scale) of the habitats, please see Appendix 3.

6.0 SPECIES

6.1 Bats

Bats often roost in trees in holes/cavities in the trunk, cracks/splits in branches, beneath dead loose bark and behind dense Ivy growth. Some of the mature trees may have potential roosting features (PRF) for roosting bats. Linear features such as hedgerows and tree lines on the boundaries of the site provide valuable flight-lines used by bats whilst foraging and commuting. The hedges and trees provide good foraging habitats for bat species due to the invertebrate species associated with them.

The rendered block single-storey garage has a pitched roof covered with cementation tiles whilst the adjoining workshop has a flat roof covered with corrugated galvanised roofing sheets. The roof of the garage is quite tight, with a few gaps beneath tiles, ridge tiles, wooden eaves/bargeboards. The garage was assessed as having a low potential for roosting bats and the workshop negligible potential for roosting bats.

There are records of Common Pipistrelle and Pipistrelle spp. within 1km radius of the survey site according to the data search.



6.0 SPECIES (continued)

6.2 Great Crested Newts and other amphibians

No signs of great crested newts (GCN) were observed during the survey. There are records of amphibians (common frog, common toad, great crested newts, palmate newt, smooth newt) within 1km radius of the survey site, according to the data search. The nearest record of GCN is over 700m from the site. Two ponds indicated on the OS map for the area are located within approx. 200m and 350m to the South of the site. Other ponds are indicated to the North and South of the site, but these are all over 500m distance from the site. The hedgerows provide low potential for use by GCN for foraging and emigration corridors. The amenity grass provides low potential for foraging GCN, due to the grass swathe being kept short via regular mowing, so does not provide sufficient cover and would leave these species prone to predators. The piles of rubble provide some potential for hibernating GCN.

6.3 Reptiles

No signs of reptiles or shed skins were observed during the survey. There are records of amphibians (adder, common lizard, grass snake) within 1km radius of the survey site, according to the data search. The nearest record of grass snake is 355m from the site. The nearest records of adder and common lizard are 391m from the site. The hedgerows provide low potential for use by reptiles for foraging and emigration corridors. The amenity grass provides low potential for foraging reptiles, due to the grass swathe being kept short via regular mowing, so does not provide sufficient cover and would leave these species prone to predators. The piles of rubble provide some potential for hibernating reptiles and basking sites.

6.4 Badgers

No evidence of badgers was observed on the site (setts, latrines, badger hairs on wire fences etc.). The amenity grass has some limited potential for foraging badgers, as the landowner has a dog which runs loose in the garden, which would likely deter badgers. There are records of badgers within 1km radius of the survey site according to the data search.

6.5 Hazel Dormice

No signs of hazel dormice were noted during the survey and there is no potential habitat for this species on the site. There are no records of hazel dormice within 1km radius of the survey site according to the data search.

6.6 Otters

No signs of otters were observed during the survey and there is no potential habitat for this species on the site. There are records of otters within 1km radius of the site according to the data search.

6.7 Other mammal species

There are records of other mammal species (hedgehog) within 1km radius of the site. The hedge provides some potential for hedgehogs.

6.8 Nesting birds

There are numerous records of birds within 1km of the site according to the data search. The hedgerows, trees and Ivy all have potential for nesting birds.



6.0 SPECIES (continued)

6.9 EPS Plant species

There are no records of EPS plant species within 1km of the site according to the data search.

6.10 Invasive non-native species

No invasive non-native species were observed on the site. There are records of non-native invasive plant species (Giant Hogweed, Himalayan Balsam, Himalayan Cotoneaster, Japanese knotweed, Rhododendron, wall cotoneaster) within 1km of the site according to the data search.

6.11 Survey Constraints

There were no particular constraints to surveys, apart, perhaps from the time of year making it difficult to account for the full range of some species of flowering plants.

6.12 Data Search Results

A summary of the data search results are included in Appendix 3. Designated sites within 1km radius of the site include:

- Wildlife Sites: Alyn Waters, Bryn Alyn and Wormswood, Woodlands and Fishpond.
- Alyn Waters Local Nature Reserve.
- Several Ancient Semi Natural Woodland Sites.

The Cofnod Data Request (E08020) provided information regarding Priority Species within a 1km radius of the site. Due to the sensitivity of the data, specific records for protected species cannot be disclosed, but there are records of Priority Species mammals (bats), amphibians (common frog, common toad, great crested newt, palmate newt, smooth newt), reptiles (adder, common lizard, grass snake), within 1km radius of the site. There are records of non-native invasive plant species (Giant Hogweed, Himalayan Balsam, Himalayan Cotoneaster, Japanese knotweed, Rhododendron, wall cotoneaster) within 1km radius.

The absence of recent records for certain species in this area is in part likely due to a lack of survey effort or the non-submission of records, rather than the absence of these species.



7.0 EVALUATION

Please note that all conclusions and recommendations are based upon the current survey findings and on the proposal outlined in 2.0 above. If the site management changes then the potential for protected species to use the site may change accordingly. Many protected species are highly mobile and re-survey of the site may be necessary in the future.

7.1 Conclusions

7.1.1 Habitats

The site has relatively high ecological value for several species and mitigation will be required to compensate for any lost habitat.

The hedges and trees provide valuable flight-lines for foraging/commuting bats. They support a range of invertebrates, which provides a good food-source for foraging bats. The hedges [J2.1] have low potential to be used by GCN, for foraging, and emigration corridors. The amenity grass [J1.2] provides low potential for foraging GCN/reptiles, due to the grass swathe being kept short via regular mowing, so does not provide sufficient cover and would leave these species prone to predators. The piles of rock/rubble provide some potential for hibernating amphibians/reptiles and basking sites for reptiles, but limited due to lack of connectivity to reach the features.

The hedges on site do not have sufficient woody species or associated features to qualify as 'important' with regards to the Hedgerow Regulations 1997, made under Section 97 of the Environment Act 1995 which came into effect 1 June 1997.

By using mitigation and Reasonable Avoidance Methods (RAM), the proposed development should have no detrimental effect on the favourable conservation status of bats, amphibians/reptiles. RAM statements will be provided in separate documents.



7.0 EVALUATION (continued)

7.1.2 Bats

Bats often roost in trees in holes/cavities in the trunk, cracks/splits in branches, beneath dead loose bark and behind dense Ivy growth. None of the trees to be removed have Potential Roosting Features (PRF) for roosting bats, so there should be no impact upon roosting bats.

Linear features such as hedgerows and mature tree lines on the boundaries of the site provide valuable flight-lines used by bats whilst foraging and commuting. The trees, hedges and long grass/tall vegetation provide good foraging habitats for bat species due to the invertebrate species associated with them.

The rendered block single-storey garage has a pitched roof covered with cementation tiles whilst the adjoining workshop has a flat roof covered with corrugated galvanised roofing sheets. The roof of the garage is quite tight, with a few gaps beneath tiles, ridge tiles, wooden eaves/bargeboards. The garage was assessed as having a low potential for roosting bats and the workshop negligible potential for roosting bats.

A further emergence survey of the garage should be carried out (May-Aug/Sept), to determine if there are any bats present, and if so, what species and numbers, in order to prescribe appropriate mitigation measures.

There are records of Common Pipistrelle and Pipistrelle spp. within 1km radius of the survey site according to the data search. If bat boxes are to be installed in some of the mature trees, or on the exterior walls of the proposed new dwellings, as part of wildlife enhancement for the proposed development, it is important that the bat boxes, roost access points and flightlines are not directly illuminated.

7.1.3 Great Crested Newts and other amphibians

No signs of great crested newts (GCN) were observed during the survey. There are records of amphibians (common frog, common toad, great crested newts, palmate newt, smooth newt) within 1km radius of the survey site, according to the data search. The nearest record of GCN is over 700m from the site. Two ponds indicated on the OS map for the area are located within approx. 200m and 350m to the South of the site. Other ponds are indicated to the North and South of the site, but these are all over 500m distance from the site. The hedgerows provide low potential for use by GCN for foraging and emigration corridors. The amenity grass provides low potential for foraging GCN, due to the grass swathe being kept short via regular mowing, so does not provide sufficient cover and would leave these species prone to predators. The piles of rubble provide some potential for hibernating GCN.

Due to the hardstanding driveway and short swathe amenity grass, there is no connectivity for these species to access the site, without being exposed to predators. If mitigation and Reasonable Avoidance Measures are implemented, the proposed development should have no detrimental effect on the favourable conservation status of GCN.



7.0 EVALUATION (continued)

7.1.4 Reptiles

No signs of reptiles or shed skins were observed during the survey. There are records of amphibians (adder, common lizard, grass snake) within 1km radius of the survey site, according to the data search. The nearest record of grass snake is 355m from the site. The nearest records of adder and common lizard are 391m from the site. The hedgerows provide low potential for use by reptiles for foraging and emigration corridors. The amenity grass provides low potential for foraging reptiles, due to the grass swathe being kept short via regular mowing, so does not provide sufficient cover and would leave these species prone to predators. The piles of rubble provide some potential for hibernating reptiles and basking sites.

Due to the hardstanding driveway and short swathe amenity grass, there is no connectivity for these species to access the site, without being exposed to predators. If mitigation and Reasonable Avoidance Measures are implemented, the proposed development should have no detrimental effect on the favourable conservation status of reptiles.

7.1.5 Badgers

No evidence of badgers was observed on the site (setts, latrines, badger hairs on wire fences etc.). The amenity grass has some limited potential for foraging badgers, as the landowner has a dog which runs loose in the garden, which would likely deter badgers. There are records of badgers within 1km radius of the survey site according to the data search. By using Reasonable Avoidance Methods, the proposed development should have no detrimental effect on the favourable conservation status of locally recorded badgers.

7.1.6 Hazel Dormice

No signs of hazel dormice were noted during the survey and there is no potential habitat for this species on the site. There are no records of hazel dormice within 1km radius of the survey site according to the data search. The proposed development will have no detrimental effect on the favourable conservation status of dormice.

7.1.7 Otters

No signs of otters were observed during the survey and there is no potential habitat for this species on the site. There are no records of otters within 1km radius of the site according to the data search. The proposed development will have no detrimental effect on the favourable conservation status of locally recorded otters.

7.1.8 Other mammal species

There are records of other mammal species (hedgehog) within 1km radius of the site. The hedge and trees provide some habitat for hedgehogs. The proposed development should have no detrimental effect on the favourable conservation status of these other mammal species. A hedgehog house will be provided as biodiversity enhancement.



7.0 EVALUATION (continued)

7.1.9 Nesting Birds

Hedgerows and trees have potential to be used by a variety of bird species for nesting. Under the Wildlife and Countryside Act, 1981 (as amended), it is illegal to take, damage or destroy the nests of wild birds whilst being built or in use (with exceptions). However it is not an offence to carry out works in areas that they use, outside of the nesting period. Therefore it is recommended that works, particularly clearance of vegetation, are carried out between the period between 1st October and end of February to avoid the breeding season.

If works to clear potential nesting habitat need to be carried out during the nesting period (1st March – 30th September) a check should be made by an ecologist for nesting birds, the day before the works are due to commence. Any birds nesting should be left to complete their breeding (i.e. until the young have fully fledged) before any works that will disturb the birds can take place.

7.1.10 EPS plant species

There are no records of EPS plant species within 1km of the site according to the data search. The proposed development should have no detrimental effect on EPS plant species.

7.1.11 Invasive non-native plant species

No invasive non-native species were observed on the site. There are records of non-native invasive plant species (Giant Hogweed, Himalayan Balsam, Himalayan Cotoneaster, Japanese knotweed, Rhododendron, wall cotoneaster) within 1km of the site according to the data search. The site entrance will be locked at night, so there is no foreseen potential of access by fly-tippers dumping material containing invasive non-native plants. Biosecurity control measures will be implemented, to minimise risk of spreading invasive non-native species.

7.1.12 Summary of further survey

Survey type	Timing	Where	Notes
Bats	May – August/September	Garage building [J3.6].	Emergence survey to determine if any bats roosting in garage roof.
Nesting birds	March - September	Hedges [J2.1], scattered trees and hedges [A3.3].	Only if scrub/trees/hedges are being removed in these months.



8.0 IMPACT ASSESSMENT

8.1 Short-term impact

Disturbance through increased human presence, noise and changes in site layout may have a detrimental effect on bats and amphibians/reptiles.

Bats

If bats are roosting in the roof of the garage, they could be affected by the proposed demolition of the garage and attached workshop buildings. If further emergence surveys conclude the garage is being used by bats, mitigation in the form of compensation will be required, to provide an alternative roost prior to works commencing. Timing of operations and the use of RAMs will minimise disturbance.

GCN/reptiles

There is a low potential that GCN/reptiles could be affected by the proposed development. Any potential natural refugia such as piles of rubble, piles of logs and metal debris which need to be removed, will need to be dismantled by hand in a 'soft demolition' by an ecologist prior to or following the winter hibernation period (November – February/March) in a careful and controlled manner, with constant vigilance for any sheltering GCN/reptiles and any other potential species. Where possible and practical, the piles of rubble/logs etc. should be transferred to another suitable location on site, (or an artificial hibernacula could be installed) to provide an alternative natural refugia for GCN/reptiles and other species. Timing of operations and the use of RAMs will minimise disturbance.

8.2 Long-term impact – roost losses

GCN/reptiles

There is a low potential that GCN/reptiles could be affected by the proposed development. The loss of terrestrial habitat (scrub vegetation and hedgerow features) and natural refugia (piles of rubble) could impact on GCN/reptiles foraging, emigration and hibernation. New tree/hedge planting and grass vegetation and provision of artificial hibernacula will be required to mitigate for any loss of habitat, to minimise the impact on GCN.

8.3 Long-term impact – fragmentation and isolation

Bats

Any loss of linear features (hedges, treelines), which provide important bat flightlines would be negative and have an impact on locally recorded bats. The sections of hedge and trees to be removed to facilitate the proposed development, is likely to have a low impact on bats. New tree/hedge planting will be required to mitigate for any loss of habitat, to minimise the impact on bats.

GCN/reptiles

Due to the hardstanding driveway and short swathe amenity grass, there is no connectivity for these species to access the site, without being exposed to predators. The hedgerows and trees provide some low potential for a wildlife corridor used by GCN/reptiles and other species, for foraging, emigration corridors and hibernation. If these features are removed or modified, this could have a negligible impact on foraging and emigration corridors for GCN and other species. A post-construction landscape scheme to include new tree/shrub planting and grass vegetation will be required, to mitigate for any loss of habitat.



8.0 IMPACT ASSESSMENT (continued)

8.4 Post-development interference impacts

Bats can be disturbed by bright, artificial lighting at night (ALAN). Where lighting is essential in the vicinity of any proposed new development, subdued lighting should be used and the illumination should be directed downwards to where it is needed (upward light ratio 0%) 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. The light should be as low as guidelines permit. If lighting is not needed in any particular area, do not light.

LED luminaires should be used where possible, with a warm white spectrum (<2700Kelvin) to minimise blue light component. Luminaires should have peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats. Alternatively, 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. The use of motion sensor-triggered security lighting with short (1 min) timers, is preferable to permanent lighting. If roosting opportunities are to be incorporated into the new development, it is essential that roost access points and flightlines used for foraging/commuting (e.g. hedgerows, lines of trees) are not illuminated. The use of soft landscaping and fencing [supported by concrete posts to ensure long-term contribution] can be used to screen light spill. The latest Guide Note 08/18 can be downloaded at www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/

Hilclare Lighting (www.hilclare.com) provide suitable lighting products to avoid illumination shining upwards (e.g. the Elmira and Madrid models).

Numerous lighting design software programmes are currently available which can be used to predict where the light cone and light spill will occur, 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 for the architect/designer, to help inform lighting plans, demonstrating how lighting decisions will illuminate a site.

If bat boxes are to be installed in some of the mature trees, and/or if roosting opportunities are to be incorporated in the new dwellings, as part of wildlife enhancement for the proposed development, it is important that the bat boxes, roost entry points and flightlines are not directly illuminated.



8.0 IMPACT ASSESSMENT (continued)

8.5 Predicted scale of impact

Sections of hedge, some trees and some grass vegetation will need to be removed, to facilitate the proposed development, which will result in some loss of habitat. New tree/shrub/hedge planting and grass vegetation will compensate for any loss of habitat.

By using mitigation and Reasonable Avoidance Methods (RAM), the proposed development should have no detrimental effect on the favourable conservation status of bats, great crested newts and other amphibians. RAM statements will be provided in separate documents.

9.0 MITIGATION

The site has relatively high ecological value for several species and mitigation will be required to compensate for any lost habitat. Sections of hedge, some trees and some grass vegetation will need to be removed, to facilitate the proposed development, which will result in some loss of habitat. A post-construction landscaping scheme including new tree, shrub and hedge planting, should be prepared for the proposed development, as mitigation and to enhance the site. Further biodiversity enhancement could be achieved by installing bat boxes and bird nesting boxes in the mature trees and/or incorporating bat-friendly features into the proposed dwellings, to provide suitable alternative roosting sites. Provision of artificial hibernacula and hedgehog houses would benefit amphibians/reptiles and hedgehogs. Provision of basking areas (e.g. piles of natural rock or small sections of dry stone wall in South or West-facing grassy areas) would benefit reptiles. Reasonable Avoidance Measures (RAM) should be used to protect protected species (see separate documents).

10.0 WILDLIFE AND THE LAW

10.1 European Protected Species

The Bern Convention (The convention on the conservation of European Wildlife and Natural Habitats) was adopted in 1979 and came into force in 1982. To implement this agreement, the European Community adopted the EC Habitats Directive. The EC Habitats Directive has been transposed into UK legislation by the Wildlife and Countryside Act, 1981 (as amended) and the Conservation of Habitats and Species Regulations, 2010. The Countryside and Rights of Way Act (CROW), 2000 strengthened the existing wildlife legislation in the UK. The UK has also signed the Bonn Convention (The Convention on the Conservation of Migratory Species of Wild Animals) and is therefore party to various agreements.



10.0 WILDLIFE AND THE LAW

10.1.1 Bats

All 17 bat species found in the UK and their roosts are protected in the UK under Schedules 5 and 6 of the Wildlife & Countryside Act 1981 (as amended) and are therefore afforded protection under Section 9 of this Act. The Countryside Rights of Way Act (CroW) 2000 strengthened the existing wildlife legislation in the UK. In addition, five British bat species are also listed on Annex II [and all bats are listed on Annex IV] of the EC Habitats Directive, which is transposed into national law by means of The Conservation of Habitats and Species Regulations (2017).

These are:

- Greater horseshoe bat (*Rhinolophus ferrumequinum*);
- Lesser horseshoe bat (*Rhinolophus hipposideros*);
- Bechstein's bat (*Myotis bechsteinii*);
- Barbastelle (*Barbastella barbastellus*) and
- Greater mouse-eared bat (*Myotis myotis*).

Bats are listed under Appendix III of the Bern Convention. Bats and their habitats are also listed under Appendix II of the Bonn Convention and therefore the UK has an obligation to protect their habitat, including links to important feeding areas. The UK had designated maternity and hibernacula areas as Special Areas of Conservation (SACs) under the Habitats Directive. Implementation of the UK Biodiversity Action Plan also includes action for a number bat species and the habitats which support them.

10.1.2 Amphibians

Great crested newts, natterjack toads and pool frogs are protected under Schedule 5 of the Wildlife and Countryside Act, 1981 (as amended). Great crested newts, natterjack toads and pool frogs are also protected under Schedule 2 of the Conservation of Habitats and Species Regulations, 2010 and listed under Annex II and Annex IV of the EC Habitats Directive.

10.1.3 Legislation relating to European Protected Species

In relation to a development a person commits an offence if they –

- Deliberately captures, injures or kills a European Protected Species
- Deliberately or recklessly disturbs wild animals of any such species in such a way as to be likely significant to affect:
 - (i) the ability of any significant group of animals to survive, breed, or rear or nurture their young; or
 - (ii) the local distribution or abundance of that species;
- Damages or destroys a breeding site or resting place (even if unintentional or when the animal is not present)
- Intentionally or recklessly obstructs access to a structure or place used for protection or shelter
- This legislation applies, regardless of the life stage (including eggs).

A European Protected Species Licence is required to carry out any activity that would otherwise involve committing an offence.

To avoid disturbance during habitat management, a written strategy is required following guidance provided by Natural Resources Wales and the Forestry Commission. If the guidance is followed and major disturbance can be avoided, then a licence is not required.



10.0 WILDLIFE AND THE LAW (continued)

10.1.4 European Protected Species Licences

At the present time, Natural Resources Wales requires the following three ‘tests’ to be met, in order that a licence may be granted.

Test 1. Regulation 53 (2) (e) states that licences granted to ‘preserve 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’.

Test 2. Regulation 53 (9) (a) states that a licence may not be granted unless the licensing authority is satisfied ‘that there is no reasonable alternative’.

Test 3. Regulation 53 (9) (b) states that a licence cannot be issued unless the licensing authority is satisfied that the action proposed ‘will not be detrimental to the maintenance of the species concerned at a favourable conservation status in its natural range’.

10.1.5 Recent changes in Licences

Following a recent intervention from the European Court, there have been significant changes in the interpretation of the way licences are issued. In considering a licence request, Natural Resources Wales will seek information relating to the size and importance of the population/colony and will require evidence to demonstrate that the species will be maintained ‘at a favourable conservation status in their natural range’. In effect, this means that to obtain a licence, Natural Resources Wales must be satisfied that the applicant will implement mitigation to safeguard (and ideally enhance) the population concerned. Natural Resources Wales will need to see evidence that the development work which will disturb/destroy a roost/resting site will be undertaken using current best practice, also that the species can be provided with an alternative roost/resting site on or in the immediate area.

10.1.6 Important EPSL Information

Please note that a European Protected Species Licence can only be obtained once planning permission has been granted. When assessing planning applications where a European Protected Species could be affected by proposed works, the local Planning Authority must take into account the potential impacts on the species concerned. In practice this could make further survey work (such as emergence surveys in the case of bats) essential prior to planning permission being granted. The local Planning Authority must also have regard for the three ‘tests’ as outlined above – Regulations 53 (2) (e), 53 (9) (a) and 53 (9) (b).

Once planning permission has been granted a European Protected Species Licence application can be submitted to Natural Resources Wales. The application requires detailed Method Statements to be produced by a qualified bat ecologist to demonstrate how Regulation 53 (9) (b) can be satisfied.

The applicant will also need to complete a Reasoned Statement form demonstrating (with evidence) that Regulations 53 (2) (e) and 53 (9) (a) are satisfied. This involves producing evidence to show that no reasonable alternative to the proposed action is available and that the action must take place to either ‘preserve 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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10.0 WILDLIFE AND THE LAW (continued)

10.1.7 European Protected Species Licences

At the present time, Natural Resources Wales requires the following three ‘tests’ to be met, in order that a licence may be granted.

Test 1. Regulation 53 (2) (e) states that licences granted to ‘preserve 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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10.1.8 Recent changes in Licences

Following a recent intervention from the European Court, there have been significant changes in the interpretation of the way licences are issued. In considering a licence request, Natural Resources Wales will seek information relating to the size and importance of the population/colony and will require evidence to demonstrate that the species will be maintained ‘at a favourable conservation status in their natural range’. In effect, this means that to obtain a licence, Natural Resources Wales must be satisfied that the applicant will implement mitigation to safeguard (and ideally enhance) the population concerned. Natural Resources Wales will need to see evidence that the development work which will disturb/destroy a roost site will be undertaken using current best practice, also that the bats can be provided with an alternative roost site on or in the immediate area.

10.1.9 Important EPSL Information

Please note that a European Protected Species Licence can only be obtained once planning permission has been granted. When assessing planning applications where a European Protected Species could be affected by proposed works, the local Planning Authority must take into account the potential impacts on the species concerned. In practice this could make further survey work (such as emergence surveys in the case of bats) essential prior to planning permission being granted. The local Planning Authority must also have regard for the three ‘tests’ as outlined above – Regulations 53 (2) (e), 53 (9) (a) and 53 (9) (b).

Once planning permission has been granted a European Protected Species Licence application can be submitted to Natural Resources Wales. The application requires detailed Method Statements to be produced by a qualified bat ecologist to demonstrate how Regulation 53 (9) (b) can be satisfied.

The applicant will also need to complete a Reasoned Statement form demonstrating (with evidence) that Regulations 53 (2) (e) and 53 (9) (a) are satisfied. This involves producing evidence to show that no reasonable alternative to the proposed action is available and that the action must take place to either ‘preserve 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.



10.0 WILDLIFE AND THE LAW (continued)

10.2 Other Protected Species

10.2.1 Nesting Birds

All wild birds are protected under Part 1 of the Wildlife and Countryside Act, 1981 (as amended). Therefore in the UK it is an offence to:

- Take, damage or destroy the nest of any wild bird whilst it is being built or in use.
- Kill, injure or take any wild bird.
- Take or destroy the eggs of any wild bird.

To avoid committing an offence no works should be carried out on a structure/feature that is being used by nesting birds. Nesting is deemed to be over when the young have fully fledged.

Certain species which are listed in Schedule 1 of the Wildlife and Countryside Act receive special protection. In these cases any form of intentional or reckless disturbance when they are nesting or rearing dependent young, constitutes an offence.

10.2.2 Reptiles

Common lizard, slow worm, adder and grass snake are all protected under Schedule 5 of the Wildlife and Countryside Act, 1981 against intentional injuring, killing or selling.

For development sites in **England, Wales or Scotland**, to avoid prosecution under the ***Wildlife and Countryside Act 1981 (as amended)***, wherever works will impact on slow worms, common lizards, adders and/or grass snakes there must be evidence that every reasonable effort was made to avoid breaking the law – including proof of adequate surveys and mitigation plans. Mitigation measures should, ideally, be agreed with the relevant SNCO (in this case Natural Resources Wales).

Only the sand lizard and smooth snake are fully protected under the Wildlife and Countryside Act, 1981 (Section 9) and Regulation 9 of the Conservation of Habitats and Species Regulations 2010 against killing, injuring, capture, damaging or destroying a breeding or resting site, intentionally obstructing access to a place used for shelter, keeping, transporting or selling. This means that not only are the animals themselves protected but so are their habitats.

10.2.3 Badgers

Badgers are protected under Schedule 6 of the Wildlife and Countryside Act, 1981 (as amended). They are also protected in the UK by the Protection of Badgers Act, 1992. Under this legislation it is an offence to:

- Wilfully kill, injure or take a badger (or attempt to do so).
- Cruelly ill-treat a badger.
- Dig for a badger.
- Intentionally or recklessly damage or destroy a badger sett, or obstruct access to it.
- Cause a dog to enter a badger sett.

Disturb a badger when it is occupying a sett.



10.0 WILDLIFE AND THE LAW (continued)

10.3 Environment (Wales) Act 2016

This Act sets out Wales' approach to planning and managing natural resources at a national and local level with a general purpose linked to statutory 'principles of sustainable management of natural resources' defined within the Act.

The Environment (Wales) Act introduces a new, enhanced Biodiversity and Resilience of Ecosystem Duty on public bodies to ensure that biodiversity is an integral part of decision making. The Duty will replace the existing Natural Environment and Rural Communities (NERC) Act 2006 Duty. Public authorities will be required to report on the actions they are taking to improve biodiversity and promote ecosystem resilience. Section 6 of the Act places a duty on public authorities to seek to maintain and enhance biological diversity (referred to as biodiversity). All public bodies, statutory undertakers, Ministers of the Crown and other public office holders are required to apply the duty when they are carrying on any functions in Wales, or in relation to Wales. Section 7 of the Act is similar to the duty in *section 42 of the NERC Act 2006* which it replaces. It places a duty on the Welsh Ministers to publish, review and revise lists of living organisms and types of habitat in Wales, which they consider are of key significance to sustain and improve biodiversity in relation to Wales.

10.4 Planning Policy Wales Framework

Planning Policy Wales (Edition 11, Feb 2021) sets out the Welsh Government's planning policies and how these are expected to be applied. The planning system manages the development and use of land in the public interest, contributing to improving the economic, social, environmental and cultural well-being of Wales, as required by the Well-being of Future Generations (Wales) Act 2015. It should reconcile the needs of development and conservation, securing economy, efficiency and amenity in the use of land, and protecting natural resources and the historic environment. A well-functioning planning system is fundamental for sustainable development.

10.5 Key Principles of PWW (2021)

Chapter 6 'Distinct and Natural Places' provides policies for protection of biodiversity and geological conservation.

Para.6.4.3 Development proposals must consider the needs to:

- support the conservation of biodiversity, in particular the conservation of wildlife and habitats;
- ensure action in Wales contributes to meeting international responsibilities and obligations for biodiversity and habitats;
- ensure statutorily and non-statutorily designated sites are properly protected and managed;
- safeguard protected and priority species and existing biodiversity assets from impacts which directly affect their nature conservation interests and compromise the resilience of ecological networks and the components which underpin them, such as water and soil, including peat; and
- secure enhancement of and improvements to ecosystem resilience by improving diversity, condition, extent and connectivity of ecological networks.



10.0 WILDLIFE AND THE LAW (continued)

10.5 Key Principles of PWW (2021)

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- ensure statutorily and non-statutorily designated sites are properly protected and managed;
- safeguard protected and priority species and existing biodiversity assets from impacts which directly affect their nature conservation interests and compromise the resilience of ecological networks and the components which underpin them, such as water and soil, including peat; and
- secure enhancement of and improvements to ecosystem resilience by improving diversity, condition, extent and connectivity of ecological networks.

Para 6.4.22 states:

- The presence of a species protected under European or UK legislation is a material consideration when a local planning authority is considering a development proposal which, if carried out, would be likely to result in disturbance or harm to the species or its habitat.
- Local planning authorities should advise anyone submitting a planning application that they must conform with any statutory species protection provisions affecting the site concerned, and should consult Natural Resources Wales before granting permission.
- An ecological survey to confirm whether a protected species is present and an assessment of the likely impact of the development on a protected species may be required in order to inform the planning decision.

Para 6.4.23 states:

- Developments are always subject to the legislation covering European protected species regardless of whether or not they are within a designated site.
- New developments for which development works would contravene the protection afforded to European protected species require derogations from the provisions of the Habitats Directive.
- A derogation may only be authorised if there is no satisfactory alternative and if the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in its natural range.
- The development works to be authorised must be for the purposes of preserving 'public health or safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment'.
- Derogations are granted by a licence issued by Natural Resources Wales. Local planning authorities are under a duty to have regard to the requirements of the Habitats Directive in exercising their functions.
- To avoid developments with planning permission subsequently not being granted derogations in relation to European protected species, planning authorities should take the above three requirements for derogation into account when considering development proposals where a European protected species is present.

Report written and compiled by



Stephen Cutmore BSc (Hons), MICFor



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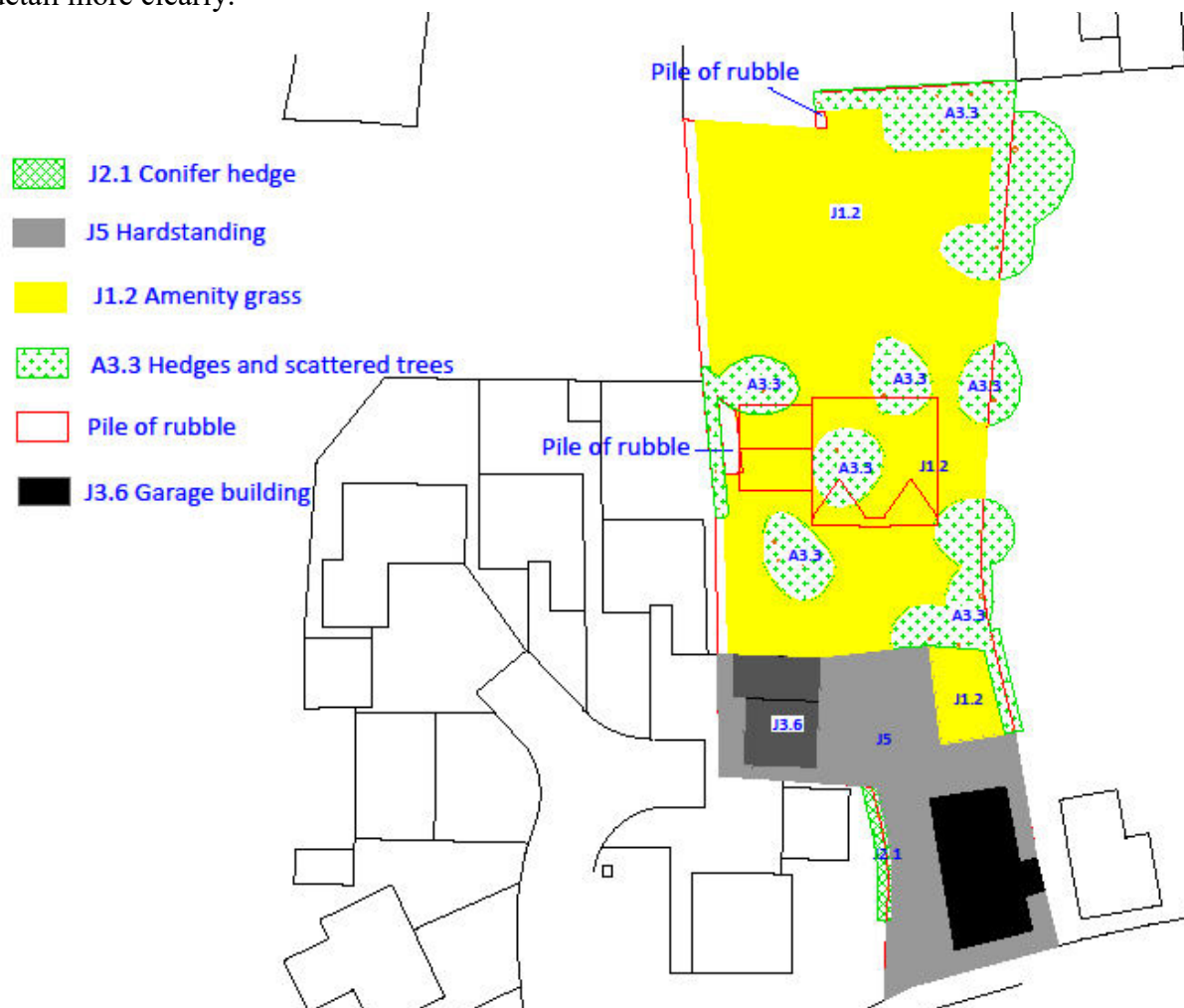
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APPENDIX 1 – Site maps

Please see accompanying pdf file ‘Willow Cottages, Bradley PEA Plan’ if you need to see detail more clearly.



APPENDIX 2 – Photographs



Photo 1: Conifer hedge [J2.1] adjacent to hardstanding [J5].



Photo 2: Amenity grass [J1.2] and hedges and scattered trees [A3.3].

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APPENDIX 2 – Photographs



Photo 3: Pile of rock/rubble by hedge provides some habitat for hibernating species.



Photo 4: Garage [J3.6] was assessed as having low potential for roosting bats.

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APPENDIX 3 – Plant species abundance rating (DAFOR)

J1.2 – Amenity grass

Species	Dominant	Abundant	Frequent	Occasional	Rare
Broad-leaved Dock				✓	
Creeping Buttercup				✓	
Cuckoo-pint					✓
Daffodil					✓
Daisy				✓	
Dandelion				✓	
Moss				✓	
Perennial Rye-grass		✓			
Ribwort Plantain				✓	

J2.1 – Conifer hedge

Species	Dominant	Abundant	Frequent	Occasional	Rare
Ivy				✓	
Western Red Cedar		✓			

A3.3 – Hedgerow and scattered trees

Species	Dominant	Abundant	Frequent	Occasional	Rare
Apple				✓	
Bramble				✓	
Broadleaved Dock				✓	
Campbell's Magnolia					✓
Common Yew					✓
Couch-grass				✓	
Cuckoo-pint				✓	
Damson			✓		
Ground Elder					✓
Hazel					✓
Holly					✓
Ivy				✓	
Pear					✓
Plum			✓		
Spotted Laurel				✓	
Stinging Nettle				✓	
Western Red Cedar			✓		
White Willow					✓
Wild Cherry					✓

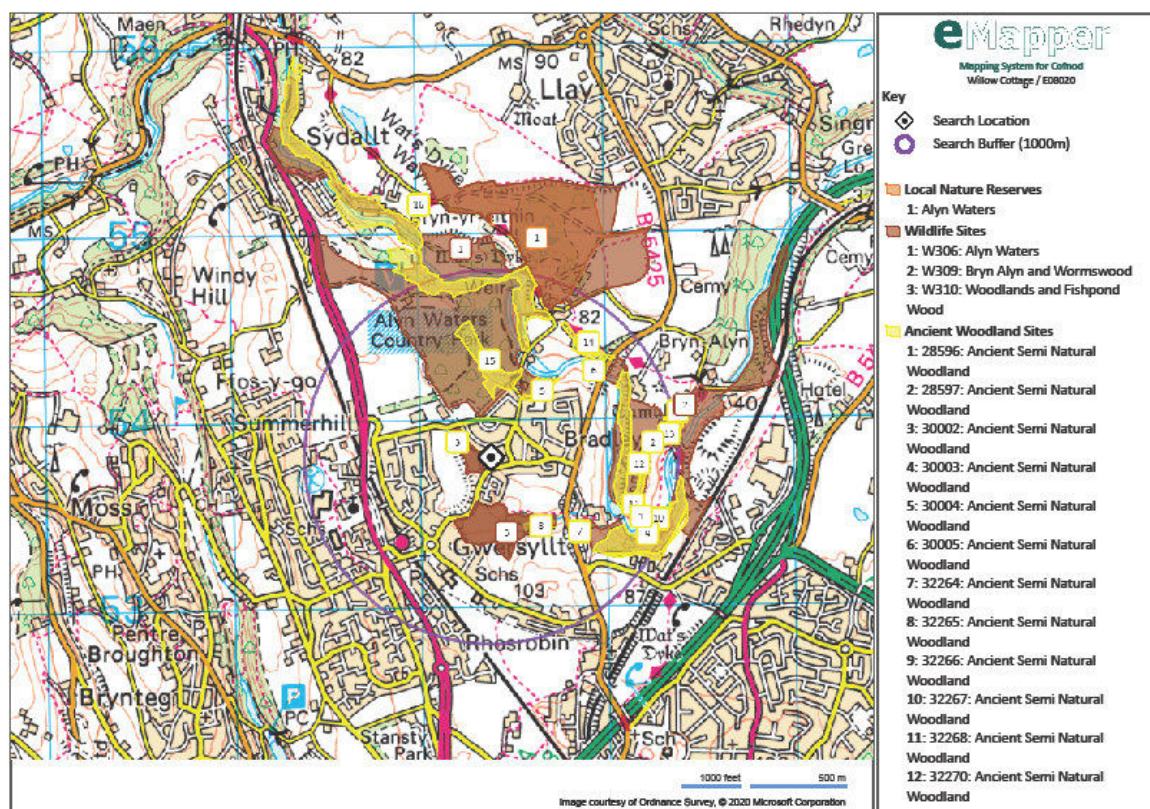


APPENDIX 4 – Data search results

Summary

Statutory and non-statutory sites within 1km of SJ32385380

Site Name	Status
Alyn Waters	Wildlife Site
Bryn Alyn and Wormswood	Wildlife Site
Woodlands and Fishpond	Wildlife Site
Alyn Waters	Local Nature Reserve
Several sites	Ancient Semi Natural Woodland Sites



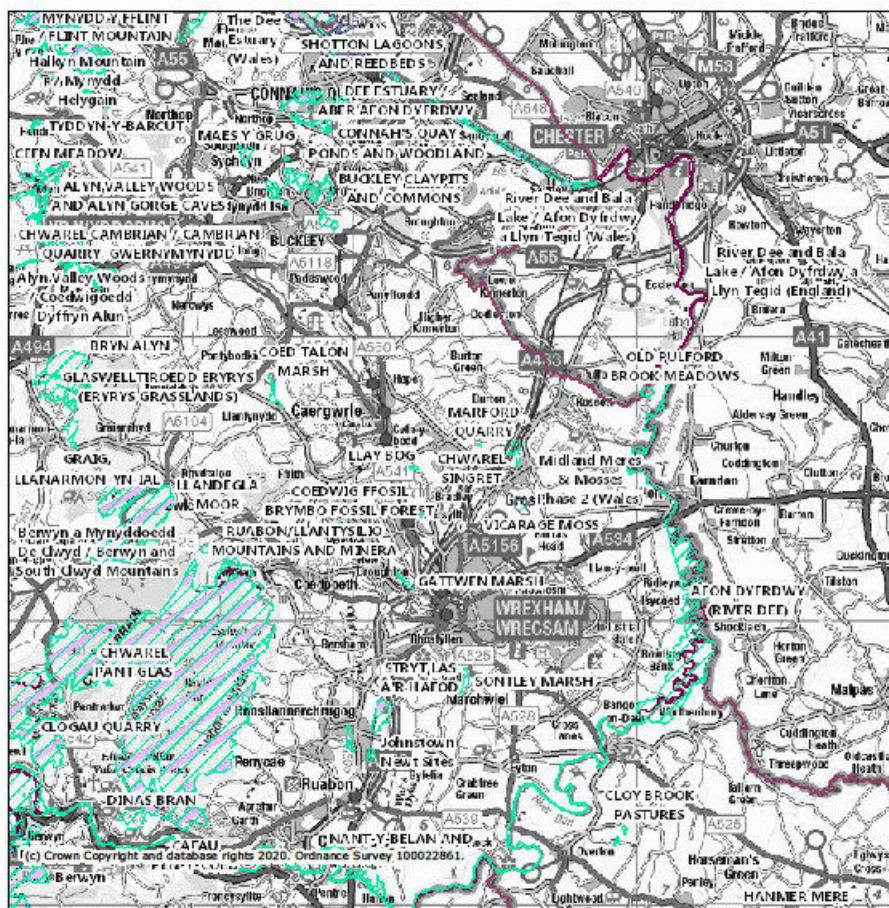
APPENDIX 4 – Data search results

Other Statutory Designated sites within 10km radius of site include:

Afon Dyfrdwy [SSSI/SAC], Brymbo Fossil Forest [SSSI], Chwarel Singret [SSSI], Coed Talon Marsh [SSSI], Gatewen Marsh [SSSI], Johnstown Newt Sites [SAC], Llandegla Moor [SSSI], Llay Bog [SSSI], Marford Quarry [SSSI], Midland Meres and Mosses [RAMSAR Phase 2/SSSI], Old Pulford Brook Meadows [SSSI], Ruabon/Llantysilio Mountains and Minera [SSSI], Sontley Marsh [SSSI], Stryt Las a'r Hafod [SSSI], Vicarage Moss [SSSI].

MAGiC

Magic Map



Legend

- National Nature Reserves (Wales) - points
- National Parks (England)
- Ramsar Sites (Wales)
- Sites of Special Scientific Interest (Wales)
- Special Areas of Conservation (Wales)
- Special Protection Areas (Wales)
- Biosphere Reserves (Wales)

0 4.5 9
km

Projection = OSGB36

xmin = 301400

ymin = 339600

xmax = 365700

ymax = 371500

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APPENDIX 4 – Data search results

Records of Priority Species within 1km of survey site.

Mammals

Species	Earliest Year	Latest Year	Records
Bats:			
Common Pipistrelle	1982	2017	2
Pipistrelle spp.	2003	2003	2
Badger	1971	2015	17
Hedgehog	2001	2016	7
Otter	1996	2017	11

Amphibians

Species	Earliest Year	Latest Year	Records
Common Frog	2002	2018	4
Common Toad	2008	2011	2
Great Crested Newt	1992	2019	24
Palmate Newt	2014	2019	13
Smooth Newt	2009	2019	23

Reptiles

Species	Earliest Year	Latest Year	Records
Adder	1993	1993	1
Common Lizard	1993	2010	2
Grass snake	1993	2019	13

Invasive non-native species (plants)

Species	Earliest Year	Latest Year	Records
Giant Hogweed	2014	2014	1
Himalayan Balsam	2010	2014	14
Himalayan Cotoneaster	2014	2014	1
Japanese Knotweed	2014	2014	1
Wall Cotoneaster	2014	2014	1



APPENDIX 5 – Hedgerow Regulations 1997

The Hedgerow Regulations 1997 were made under Section 97 of the Environment Act 1995 and came into effect 1 June 1997.

It is against the law to remove most hedges without permission. Removal is uprooting or otherwise destroying a hedgerow. Serious damage to the root system or over-maintenance resulting in the death of the hedgerow counts as removal. The regulations only cover hedgerows that are at least 20m long or, if shorter, connected to other hedgerows at both ends, or part of a longer hedgerow. They must be in or adjacent to common land, village greens, SSSIs, LNRs, or land used for agriculture, forestry or breeding or keeping of horses, ponies or donkeys. Garden hedges and former hedgerows that have grown to a line of trees are not covered by the regulations. Trees within a hedgerow are considered to be a part of the hedge.

What is an important hedgerow?

To qualify as ‘important’, a hedgerow must be at least 30 years old and meet at least one of the following eight criteria, which identify hedgerows of particular archaeological, historical, wildlife and landscape value.

- The hedgerow marks the boundary of a historic parish or township existing before 1850.
- The hedgerow incorporates an archaeological feature.
- The hedgerow is a part of or associated with an archaeological site.
- The hedgerow marks the boundary of or is associated with a pre-1600 AD estate or manor.
- The hedgerow forms an integral part of or is associated with a field system pre-dating the Enclosures Act.
- The hedgerow contains a listed species. These have to be listed the Wildlife and Countryside Act 1981 either in Part I of Schedule 1 (birds protected by special penalties), or Schedule 5 (other animals) or Schedule 8 (plants). In addition, species listed in certain red data books qualify. Unfortunately, the list of birds was published in 1990, and does not include species such as song thrush and linnet, whose numbers have declined more recently.
- The hedgerow includes, on average, in a 30 metre length one of:
 - a) at least 7 woody shrub and tree species listed in the regulations (see the list below).
 - b) at least 6 woody species and has at least 3 associated features.
 - c) at least 6 woody species including a black-poplar tree, large-leaved lime, small-leaved lime or wild service tree.In northern England, the number of woody species is reduced by one.
- The hedgerow runs alongside a bridleway, footpath, road used as a public path or a byway open to all traffic, and includes at least four woody species, on average, in a 30 metre length and has at least two associated features.



APPENDIX 5 – Hedgerow Regulations 1997 (continued)

The associated features are:

1. A bank or wall supporting the hedgerow along at least half of its length.
2. Less than 10% gaps.
3. On average, at least one tree per 50 metres of hedge
4. At least three species from a list of 57 herbaceous woodland plants, including bluebell, primrose, wild strawberry and assorted ferns and violets (see list below).
5. A ditch along at least a half of the length of the hedge.
6. A number of connections with other hedgerows, ponds or woodland.
7. A parallel hedge within 15 metres of the hedgerow.

Schedule 2 Woodland plant species

Barren strawberry, bluebell, broad buckler fern, broad-leaved helleborine, bugle, common cow-wheat, common dog violet, common polypody, dog's mercury, early dog violet, early purple orchid, enchanter's nightshade, giant fescue, goldilocks buttercup, great bell-flower, greater wood-rush, hairy brome, hairy woodrush, hard fern, hard shield fern, hart's tongue, heath bedstraw, herb paris, herb-robert, lady fern, lords-and-ladies, male fern, moschatel, narrow buckler-fern, nettle-leaved bell-flower, oxslip, pignut, primrose, ramsons, sanicle, scaly male-fern, small cow-wheat, soft shield fern, sweet violet, toothwort, tormentil, wild strawberry, wood anemone, wood avens/herb bennet, wood false-brome, wood horsetail, wood meadow-grass, wood melick, wood millet, wood sage, wood sedge, wood sorrel, wood speedwell, wood spurge, woodruff, yellow archangel, yellow pimpernel.

Schedule 3 Woody shrub and trees species

Alder, crab apple, ash, aspen, beech, downy birch, silver birch, black-poplar, blackthorn, box, broom, buckthorn, alder buckthorn, butcher's broom, bird cherry, wild cherry, wild cotoneaster, downy currant, mountain currant, dogwood, elder, elm, gooseberry, gorse, dwarf gorse, western gorse, guelder rose, hawthorn, midland hawthorn, hazel, holly, hornbeam, common juniper, large-leaved lime, small-leaved lime, field maple, mezereon, pedunculate oak, sessile oak, osier, Plymouth pear, wild pear, grey poplar, white poplar, wild privet, rose, rowan, sea-buckthorn, wild service-tree, spindle, spurge-laurel, walnut, wayfaring-tree, whitebeam, willow, yew.

