**Sites A and B at Land off Holywell Road, Ewloe Green, CH5 3DA**

# PRELIMINARY ECOLOGICAL APPRAISAL

**November 2019**

**[ERAP (Consultant Ecologists) Ltd ref: 2019-049]**

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| **Survey Type:** | **Surveyors**[1] | **Survey Date(s)** |
|---|---|---|
| Phase 1 Habitat survey | Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM | 26th June 2019 |
| Daylight bat survey | Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM | 26th June 2019 |
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| **Report issued to** | [redacted] | |
| **Version Number** | 1 | |

[1] *Licence reference numbers*

**Bats**

Victoria Burrows, Natural Resources Wales licence to disturb and take bats for scientific and educational purposes and for the purpose of conserving wild animals licence number 78551:OTH:CSAB:2018 valid between 28th February 2018 to 29th February 2020

**Great crested newt**

Victoria Burrows, Natural Resources Wales great crested newt survey licence number S086006/1 valid from 1st March 2019 to 31st March 2021

## SUMMARY

### Introduction and Scope

i. This Preliminary Ecological Appraisal presents the ecological, biodiversity and nature conservation status of land off Holywell Road, Ewloe Green, Flintshire. The appraisal was requested in connection with proposals to promote the inclusion of the site in the local development plan for residential development.

ii. The appraisal presents the results of a desktop study and data search, extended Phase 1 Habitat Survey and a daylight licensed bat survey and assessment carried out in June 2019. The survey was carried out by an appropriately experienced, licensed and qualified ecologist. The scope of survey undertaken is appropriate to identify potential ecological constraints, the remit of mitigation required, the scope of further surveys necessary to progress a site through to a planning application and opportunities for biodiversity associated with the development proposals.

iii. The approximately 9.8 hectare site comprises fields of cattle and pony grazed improved grassland with hedgerow and scattered tree field boundaries. The site also encompasses a residential property and associated outbuildings and mown amenity grassland (lawn) at Ivy Cottage off Green Lane at the southern end of the site. A short (70 metres) section of watercourse is present at the south-western end of the site.

### Results of Survey and Assessment

iv. The site and adjacent land have no statutory or non-statutory designation for nature conservation. Direct adverse effects on non-statutory designated sites for nature conservation and the integrity of the Deeside and Buckley Newt Sites Special Area for Conservation (SAC) and Connah's Quay Ponds and Woodland Site of Special Scientific Interest (SSSI) located a minimum of 165 metres to the north of the site boundary and the conservation status of their features of special interest (old sessile oak woodlands and the great crested newt) will be avoided by the proposals.

v. The need to consider indirect effects on the designated sites for nature conservation as a result of water pollution, impacts on habitat connectivity and recreational pressures is essential. A test of likely significant effect will be required as part of a planning application submission to determine whether the development will have a significant effect the conservation features of the SAC indirectly either alone or in combination with other sites. If a likely significant effect is determined then mitigation will be required. Guidance is provided in **Section 5.6** to demonstrate the ways this can be achieved at the site.

vi. None of the habitats within the site are of significant interest in terms of their plant species composition or are representative of semi-natural habitat. The NVC communities present are typical of the geographical area and the agriculturally managed conditions present. The site contains only common and widespread plant species.

vii. All hedgerows are examples of Priority Habitat. One hedgerow (Hedgerow 2) meets the criteria to qualify as 'important' in accordance with *The Hedgerows Regulations 1997* wildlife and landscape criteria. In addition, the hedgerows are of local value as they add structural diversity and are suitable for use by breeding birds and foraging and commuting bats and other fauna.

viii. No invasive plant species listed on Schedule 9 of the *Wildlife and Countryside Act (1981)* as amended have been detected at the site.

ix. Badger activity was detected at the site; avoidance of the sett and mitigation is feasible.

x. Habitats at the site are suitable for use by foraging and commuting bats. Following a preliminary external assessment of the buildings for their suitability for use by roosting bats; the timber kennels, sheds and stables are assessed to be of negligible suitability and the outbuilding and cottage are of moderate suitability; further survey will be required to confirm the status of roosting bats at the site and to inform a mitigation strategy (if required), should these buildings be affected, refer to **Section 5.3**.

xi. A number of hedgerow trees at the site support features with suitability for use by roosting bats (1 with high suitability, 3 moderate suitability and 12 with low suitability). Further survey will be required at any individual trees scheduled for removal to inform a planning application.

xii. The trees, shrubs and hedgerows provide favourable foraging and nesting habitat for passerine species of birds detected within the site and the wider area, including Priority Species. Breeding bird surveys may be required to support a planning application.

xiii. Reptile presence / absence surveys may be required to support a planning application; mitigation is considered to be feasible.

xiv. Based on the habitats present and the results of the desktop study and data search, the presence of and any adverse effects on other protected species are reasonably scoped out at this stage.

**Mitigation and Recommendations**

xv. The recommendations in **Section 5.0** address all the mandatory measures and ecological recommendations to be applied to ensure compliance with wildlife legislation, Natural Resources Wales guidance, the principles of *Planning Policy* and *Technical Advice Note (TAN) 5: Nature Conservation and Planning*, local planning policy and best practice.

xvi. In summary, the recommendations section provides guidance in relation to:

- The scope of further ecological surveys to be carried out to support a full planning application;
- The site masterplan / layout to achieve an ecology-led and sympathetic scheme;
- Embedded mitigation to be accommodated by the scheme to minimise / avoid significant adverse indirect effects on the integrity of the designated sites for nature conservation and their features of special interest;
- An outline of measures to be applied to minimise long-term effects on biodiversity, such as sympathetic use of lighting; and
- An outline of the features to be accommodated at a residential development to achieve a net gain and enhancement for biodiversity.

**Conclusion**

xvii. The preliminary ecological appraisal demonstrates that a residential development at Ewloe Green is feasible and acceptable in accordance with ecological considerations and *Planning Policy Wales* and *Technical Advice Note (TAN) 5: Nature Conservation and Planning*. No significant ecological constraints on the development of the site have been identified.

xviii. In the presence of an appropriately designed scheme that takes into account the requirements of the Supplementary Planning Guidance (SPG) 8 and 8a it is concluded that the allocation and development of the site at Ewloe Green to residential properties can be achieved with no significant adverse direct effect on the integrity of the statutory designated sites for nature conservation and the conservation status of their features of interest.

xix. Similarly, in accordance with SPG8a, appropriate and proportionate mitigation for indirect effects on the designated sites for nature conservation associated with recreational pressures, either alone or in-combination with other schemes, is achievable in the presence of an appropriately designed scheme (or through a combination of on-site provision and off-site contribution).

xx. Significant adverse effects on other protected species namely badger and nesting birds (and possibly roosting bats, water vole and reptile species, subject to the results of further surveys) will be avoided and measures for Priority Species will be accommodated within the proposals.

xxi. Development at the site will secure an opportunity to implement beneficial measures such as habitat management and habitat creation that will conserve and enhance habitats for wildlife such as birds and bats, with the aim of complementing the habitats in the wider area and providing a measurable net gain in biodiversity.

## 1.0 INTRODUCTION

### 1.1 Background and Rationale

1.1.1 ERAP (Consultant Ecologists) Ltd was commissioned by [redacted] to carry out an ecological appraisal of Sites A (ref: EWL017) and B (EWL020) off Holywell Road, Ewloe Green (hereafter referred to as the 'site'). The Ordnance Survey (OS) grid reference at the centre of the site is SJ 29149 66731.

1.1.2 The appraisal was requested in connection with promotion of the site for a residential development allocation under the area development plan.

### 1.2 Scope of Works

1.2.1 The scope of ecological works undertaken comprised:

a. A desktop study for known ecological information at the site and the local area;

b. An Extended Phase 1 Habitat Survey and assessment;

c. Assessment of the ecological value of the habitats within the site with the use of the National Vegetation Classification (NVC) and the Ratcliffe criteria, as presented in *A Nature Conservation Review* (Ratcliffe, 1977);

d. Survey and assessment of all habitats for relevant statutorily protected species and other wildlife including badger (*Meles meles*), barn owl (*Tyto alba*), great crested newt (*Triturus cristatus*), water vole (*Arvicola amphibius*), bird species, invertebrates and reptiles;

e. A preliminary licensed bat survey of the buildings and trees;

f. The identification of any potential ecological constraints on the suitability of the site for residential development and the specification of the scope of mitigation and ecological enhancement required in accordance with wildlife legislation, planning policy guidance and other relevant guidance; and

g. The identification of any further surveys or precautionary actions that may be required to fully inform a future planning application and decision.

## 2.0 METHOD OF SURVEY

### 2.1 Desktop Study

2.1.1 The following sources of information and ecological records were consulted:

a. MAGiC: A web-based interactive map which brings together geographic information on key environmental schemes and designations, including details of statutory nature conservation sites;

b. North Wales Environmental Information Service / Gwasanaeth Gwybodaeth Amgylcheddol Gogledd Cymru; and

c. Flintshire Biodiversity Action Plan (BAP).

## 2.2 Vegetation and Habitats

2.2.1 An Extended Phase 1 Habitat Survey of the site was carried out by Victoria Burrows on 26th June 2019, the weather was dry and overcast with sunny intervals, a light air (Beaufort 1) and 14°C at 9am rising to 20°C in the afternoon. The conditions and time of year were favourable for the ecological survey.

2.2.2 A habitat and vegetation map was produced for the site and the immediate surrounding area (refer to **Figure 2**). The mapping is based on the Joint Nature Conservation Committee Phase 1 Habitat Survey methodology (JNCC, 2010) with minor adjustments to illustrate and examine the habitats with greater precision.

2.2.3 The plant species within the site boundary were determined with estimates of the distribution, ground cover, abundance and constancy of individual species. The estimation of abundance was based on the DAFOR system, where D = Dominant, A = Abundant, F = Frequent, O = Occasional and R = Rare, this being a widely used and accepted system employed by ecological surveyors. The terms L = Locally and V = Very were additionally used to describe the plant species distributions with greater precision.

2.2.4 Stands of vegetation and habitats were described and evaluated using the National Vegetation Classification (NVC). The NVC provides a systematic and comprehensive analysis of British vegetation and is a reliable framework for nature conservation and land-use planning.

2.2.5 Hedgerows were assessed in accordance with *The Hedgerows Regulations 1997* Wildlife and Landscape Criteria (H.M.S.O., 1997).

2.2.6 Searches were made for uncommon, rare and statutorily protected plant species, those species listed as protected in the *Wildlife and Countryside Act 1981* (as amended) and species which are indicators of important and uncommon plant communities. Plant nomenclature follows *New Flora of the British Isles 3rd Edition* (Stace, 2010).

2.2.7 Searches were carried out for the presence of invasive species, including those listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), including Japanese Knotweed (*Fallopia japonica*), Indian Balsam (*Impatiens glandulifera*) and Giant Hogweed (*Heracleum mantegazzianum*).

## 2.3 Animal Life

**Badger**

2.3.1 The survey area for badger covered the site (as annotated on **Figure 2**) and extended to accessible land within a radius of 30 metres from the site boundary. Private gardens / land were excluded from the survey.

2.3.2 The survey was conducted in accordance with guidance presented within *Badgers and Development* (Natural England, 2007) and *Badgers: surveys and mitigation for development projects* (Natural England, 2015).

2.3.3 The following signs of badger activity were searched for:

a. Sett entrances, e.g. entrances that are normally 25 to 35cm in diameter and shaped like a 'D' on its side;

b. Large spoil heaps outside sett entrances;

c. Bedding outside sett entrances;

d. Badger footprints;

e. Badger paths;

f. Latrines;

g. Badger hairs on fences or bushes;

h. Scratching posts; and

i. Signs of digging for food.

2.3.4 Habitats within and surrounding the site were assessed in terms of their suitability for use by foraging and sheltering badger in accordance with their known habitat preferences as detailed in current guidance and *Badger* (Roper, 2010).

**Bat Species**

***Habitat Assessment for Commuting / Foraging Bats***

2.3.5 Habitats within and adjacent to the site were assessed for their value and suitability for commuting and foraging bats in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn),* (Collins, J. (ed), 2016). Reference has been to the categories and descriptions / examples, presented below.

**Table 2.1: Consideration of Suitability of Foraging and Commuting Habitat for Bats**

| Suitability | Commuting Habitat | Foraging Habitat |
|---|---|---|
| Negligible | Negligible habitat features on site likely to be used by commuting bats. | Negligible habitat features on site likely to be used by foraging bats. |
| Low | 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 or patch of scrub. |
| Moderate | 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 linked to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water. |
| High | Continuous, high-quality habitat that is well connected to the wider landscape and is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge.<br>Habitats close to and connected to known roosts. | High-quality habitat that is well-connected to the wider landscape and is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland.<br>Habitats close to and connected to known roosts. |

***Daylight Survey***

*Survey Personnel and Survey Guidelines*

2.3.6 The site was assessed for its suitability to support roosting bats by Victoria Burrows (licence number 78551:OTH:CSAB:2018). The surveyor's qualifications and experience meet the criteria as defined in the *Technical Guidance Series Competencies for Species Survey: Bats* (CIEEM, 2013).

2.3.7 The survey was carried out in accordance with standard methodology including the *Bat Mitigation Guidelines* (Mitchell-Jones, 2004), the *Bat Workers' Manual 3rd Edition* (Mitchell-Jones & Mcleish, 2004) and *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)* (Collins, J. (ed), 2016).

*Buildings*

2.3.8 An inspection of the external surfaces, walls and roofs of the buildings was carried out to find potential bat roosting habitat or accesses into internal areas where roosts may be present. Searches for evidence of bat presence in the form of droppings, urine stains, feeding signs, grease marks and other evidence were also carried out.

2.3.9 Where access was possible, the internal survey involved an examination of the internal areas to find roosting bats or evidence of previous use of the buildings by bats such as droppings and prey remains.

2.3.10 The suitability of each building has been assessed in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn),* (Collins, J. (ed), 2016), taking into account any presence of gaps suitable for access by bats, features suitable for use by roosting bats within the building (including crevice dwelling species and species which can roost in the open in roof voids), and the suitability of the surrounding habitats for use by foraging and commuting bats.

*Trees*

2.3.11 A preliminary assessment of the trees within the site was conducted to assess their suitability for use by roosting bats, and to inform whether further surveys or precautionary measures were required.

2.3.12 Trees were assessed from the ground using binoculars and a high-powered torch. Each tree was searched for the presence of the following features:

Woodpecker holes, rot holes, hazard beams, other vertical or horizontal cracks or splits in stems and branches, partially decayed platey bark, knot holes, man-made holes, tear-outs, cankers in which cavities have developed, other hollows or cavities, including butt-rots, double-leaders forming compression forks with included bark, gaps between overlapping stems or branches, partially detached Ivy (Hedera helix) with stem diameters in excess of 50mm and bat, bird or dormouse (Muscardinus avellanarius) boxes.

2.3.13 Terms used to describe any features present follow (where possible) those outlined and described in *Bat Tree Habitat Key, 2nd Edition* (Andrews, H (ed), 2013) and *Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-care and Ecology Professionals* (BTHK, 2018).

2.3.14 The requirement for further presence / absence surveys at each tree was then considered.

*Equipment*

2.3.15 A list of equipment used is detailed below:

**Table 2.2: Survey Equipment used during Daylight Bat Survey**

| |
|---|
| Ladders |
| LED Lenser P14 torch |
| Canon Ixus digital camera |
| 8x20 binoculars |
| Ridgid Micro Inspection Camera Borescope CA-300 |

**Bird Species**

2.3.16 Bird species observed and heard during the survey were recorded.

2.3.17 Habitats throughout the site and in the immediate surrounding area were assessed for their value to roosting, feeding and nesting birds, as indicated by the amount of shelter, feeding value, woody vegetation structure and species diversity of tree and shrub species in the site.

2.3.18 Accessible buildings were searched for pellets, faecal splashes and feathers which may indicate use by roosting or nesting barn owl in accordance with *The Barn Owl Conservation Handbook* (Barn Owl Trust, 2012) and *Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment. Developing Best Practice in Survey and Reporting* (Shawyer, 2011).

**Great Crested Newt**

***Desktop Search for Ponds***

2.3.19 The search of habitats in the wider area up to a distance of 500 metres from the site boundary revealed the possible presence of three ponds, as detailed below.

**Table 2.3: Ponds within 500 metres of the Site Boundary**

| Pond Reference | OS Grid Reference | Distance from Site Boundary | Location (refer to Figure 2) |
|---|---|---|---|
| 1 and 1b | SJ 29016 67389 | 435 metres | Within Wepre Wood to the north of the site and on the opposite side of Holywell Road |
| 2 | SJ 29612 67162 | 341 metres | In a field to the north-east on the opposite side of Holywell Road |

***Habitat Suitability Index Assessment***

2.3.20 All ponds were assessed using the Habitat Suitability Index (HSI) (Oldham, et al., 2000). The ponds were examined with reference to the ten HSI scoring criteria, which are: **$SI_1$**: Geographical location; **$SI_2$**: Pond area; **$SI_3$**: Pond drying; **$SI_4$**: Water quality (as indicated by the diversity of aquatic plants and invertebrates); **$SI_5$**: Shade; **$SI_6$**: Waterfowl; **$SI_7$**: Fish; **$SI_8$**: Abundance of other ponds within a one kilometre radius; **$SI_9$**: Quality of terrestrial habitat; and **$SI_{10}$**: Macrophyte cover (i.e. aquatic and emergent plants). The survey was conducted in accordance with *ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index. Amphibian and Reptile Groups of the United Kingdom* (ARG UK, 2010).

2.3.21 The assessment followed guidance in relation to interpreting HSI scores, following the categorical scale shown below.

**Table 2.4: Pond Habitat Suitability Index Categories**

| HSI Score | Pond Suitability for Great Crested Newt |
|---|---|
| <0.5 | Poor |
| 0.5 – 0.59 | Below average |
| 0.6 – 0.69 | Average |
| 0.7 – 0.79 | Good |
| >0.8 | Excellent |

***Assessment of Terrestrial Habitat***

2.3.22 An assessment of the terrestrial habitat within the site for great crested newts was conducted, as informed by the *Great Crested Newt Mitigation Guidelines* (English Nature, 2001) and the *Great Crested Newt Conservation Handbook* (Langton, et al., 2001).

2.3.23 Habitats present within the site were assessed for their value to support foraging, sheltering and hibernating great crested newt. Favourable habitats can comprise rough grassland, scrubland, woodland and sites with underground crevices or cracks, such as mammal holes, voids in tree stumps or banks, and refugia such as rock piles or dead wood.

***Consideration of Requirement for Further Survey***

2.3.24 The requirement for further survey at each pond was then assessed using the following criteria:

a. Presence of dispersal barriers to great crested newt movements between ponds and the site, as detected during the walkover survey;

b. Distance of ponds from the site, and the potential influence of the proposed development of the site on any populations of great crested newt (if present at ponds); and

c. Presence of other ponds which may form metapopulations and/or alter the influence of the site on ponds at greater distances.

2.3.25 This is discussed further in **Section 3.3**.

**Reptile Species**

2.3.26 The site and its surroundings were assessed in terms of their suitability for use by reptile species using the important characteristics for reptiles outlined in the *Reptile Habitat Management Handbook* (Edgar, et al., 2010). These habitat characteristics are outlined below.

**Table 2.5: Important Habitat Characteristics for Reptiles**

| | |
|---|---|
| 1. Location (in relation to species range) | 7. Connectivity to nearby good quality habitat |
| 2. Vegetation Structure | 8. Prey abundance |
| 3. Insolation | 9. Refuge opportunity |
| 4. Aspect | 10. Hibernation habitat potential |
| 5. Topography | 11. Disturbance regime |
| 6. Surface geology | 12. Egg-laying site potential |

**Water Vole and Otter**

2.3.27 The drain that extends through the southern portion of Site B was assessed for its suitability for use by water vole and otter (*Lutra lutra*).

## 2.4 Survey and Reporting Limitations

2.4.1 The purpose of this ecological appraisal is to provide an overview of the ecological baseline to assess the suitability of the site for residential development. In doing so this report also advises on the need, or otherwise, of further ecological surveys to inform a future planning application and decision. The recommended further surveys are outlined at **Section 5.3**.

2.4.2 It is identified that not all of the internal areas of the buildings at Site A (at Ivy Cottage) were accessed to inform the preliminary appraisal in relation to roosting bats. The buildings that were not at accessed internally are clearly identified at **Section 3.3**.

2.4.3 There were no other ecological constraints on the intended scope of survey carried out.

2.4.4 All measurements within this report are approximate only, and have been either estimated whilst on site or calculated using mapping software (QGIS) or internet-based mapping services such as MAGiC and Google Earth.

## 2.5 Evaluation Methods

2.5.1 The habitats, vegetation and animal life were evaluated with reference to standard nature conservation criteria as described in *A Nature Conservation Review* (Ratcliffe, 1977). These are size (extent), diversity, naturalness, rarity, fragility, typicality, recorded history, position in an ecological or geographical unit, potential value and intrinsic appeal.

2.5.2 Habitats have been assessed to determine whether they meet those described in *UK Biodiversity Action Plan: Priority Habitat Descriptions* (Maddock, A (ed), 2008); these lists are used to help draw up the statutory lists of Priority Habitats / Habitats of Principal Importance for the Conservation of Biodiversity in Wales, as required under Section 7 of the *Environment (Wales) Act 2016*. Where suitable, the ecological value of the habitats present have been assessed using the terms outlined in *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018).

2.5.3 Government advice on wildlife, as set out in *Planning Policy Wales Edition 10* (Welsh Government, December 2018) has been taken into consideration. Legislation relating to protected species, such as those listed under Schedules 1, 5, 6 and 8 of the *Wildlife and Countryside Act 1981* (as amended) and *The Conservation of Habitats and Species Regulations 2017*, is referenced where applicable, and any impacts to protected species are evaluated in accordance with current guidance.

2.5.4 The presence of any Priority Species, as listed under Section 7 of the *Environment (Wales) Act 2016* is noted (if relevant), and habitats are assessed in terms of their suitability and value for these species. The presence of habitats and/or species listed by the Flintshire Biodiversity Action Plan has been taken into account in the evaluation of the site.

# 3.0 SURVEY RESULTS

## 3.1 Desktop Study

### Statutory Designated Sites for Nature Conservation

3.1.1 The site and adjacent land have no statutory designation for nature conservation.

3.1.2 There are four statutorily designated sites for nature conservation within 2 kilometre (km) radius of the site, as listed at **Table 3.1**.

**Table 3.1: Statutory Designated Sites for Nature Conservation within 2 kilometre Radius of the Site Boundary**

| Site Name | OS Grid Reference | Distance from Site (m) | Reason for Designation |
|---|---|---|---|
| Connah's Quay Ponds and Woodland SSSI | SJ 290 676 | 165 | The site is of special interest for its population of great crested newt, its assemblage of widespread amphibian species, and for its semi-natural broadleaved woodland. |
| Deeside and Buckley Newt sites SAC | SJ 291 678 | 165 | The site supports one of the largest populations of great crested newt in Great Britain. |
| Buckley Claypits and Commons SSSI | SJ 272 650 | 786 | Site is of special interest for its population of great crested newt, its assemblage of widespread amphibian species, and for its mosaic of semi-natural grassland. |
| Gathering Grounds Woods & Llwyni Pond LNR | SJ 287 686 | 1415 | The site supports broadleaved woodland and flowering plants such as Bluebell (*Hyacinthoides non-scripta*), Wood Anemone (*Anemone nemorosa*), Ramsons (*Allium ursinum*), Cuckooflower (*Cardamine pratensis*) and Yellow-rattle (*Rhinanthus minor*). |

3.1.3 The site lies approximately 165 metres (minimum) to the south of the Deeside and Buckley Newt Sites Special Area for Conservation (SAC) and Connah's Quay Ponds and Woodland Site of Special Scientific Interest (SSSI). Examination of OS maps and a walkover survey of the designated site for nature conservation confirms that the northern site boundary is 400 metres from the nearest pond and likely great crested newt breeding pond.

3.1.4 The SAC and SSSI are designated for the presence of old sessile oak woodlands and the great crested newt.

3.1.5 A test of likely significant effect appropriate assessment will be required as part of a planning application submission and mitigation measures may be required to demonstrate that the development will not significantly affect the conservation features of the SAC directly or indirectly.

3.1.6 Guidance in accordance with Supplementary Planning Guidance (SPG) 8a Great Crested Newt Mitigation Requirements will be applicable. This is discussed further below.

**Non-statutory Designated Sites for Nature Conservation**

3.1.7 There are eight non-statutorily designated sites for nature conservation (Wildlife Sites) within 2km radius of the site boundary, as detailed at **Table 3.2**.

**Table 3.2: Non-statutory Designated Sites for Nature Conservation within 2 kilometre Radius of the Site Boundary**

| Wildlife Site Name | OS Grid Reference | Distance from Site (m) | Reason for Designation |
|---|---|---|---|
| New Inn Brook Wood | SJ 287 669 | 78 | Semi-natural broad-leaved woodland in the steep side valley of the New Inn Brook. |
| Sea View Wetland | SJ 299 675 | 731 | Wetland stands with common reed and marshy grassland |
| Aston Wetland | SJ 302 672 | 817 | Level triangular site of willow scrub with marshy grassland mosaic with patches of tall herb fen and birch trees along the railway |
| Brook Park Farm Wood | SJ 276 673 | 1096 | Semi-natural broad-leaved and mixed broad-leaved and coniferous plantation along a stream valley |
| Cobbler's and Stonybeach Woods | SJ 269 663 | 1465 | An elongated narrow stand of semi-natural broad-leaved woodland in the steep-sided valleys of Alltami Brook and two of its tributaries. |
| Pentre Moch Pond | SJ 276 680 | 1618 | Small swamp and pond. |
| Etna Road Pools | SJ 286 645 | 1792 | Disused clay pit, now flooded with one large and two smaller pools. |
| Buckley Mountain and the Trap | SJ 277 649 | 1927 | Semi-improved neutral and acid grassland with some scattered scrub around the edge of a large pool, the Trap, which occupies a disused pit. |

**Protected and Notable Species**

3.1.8 Records of protected and notable species for a 2 km radius of the site as provided by Cofnod, the North Wales Environmental Information Service are summarised below.

**Table 3.3: Records of Protected Species Within a 2 Kilometre Radius of the Site**

| Taxon Group | Species Name and Designations[1] and Notes |
|---|---|
| **Reptiles** | Adder (*Vipera berus*) Bern, S7, WCA5, LBAP: 4 records, dated between 2001 and 2006, the closest of which is 1438m from the site.<br>Grass snake (*Natrix natrix*) Bern, S7, WCA5, LBAP: 42 records, dated between 1985 and 2018, the closest of which is 1186m from the site.<br>Slow worm (*Anguis fragilis*) Bern, S7, WCA5, LBAP: 2 records, dated between 2011 and 2012, the closest of which is 1750m from the site.<br>Common lizard (*Zootoca vivipara*) Bern, S7, WCA5, LBAP: One record, dated 2001, recorded 675m from the site. |

| Taxon Group | Species Name and Designations[1] and Notes |
|---|---|
| **Terrestrial Mammals (Bats)** | Brown long-eared bat (*Plecotus auritus*) EPS, WCA5, S7 & LBAP: One record, dated 2012, recorded 1068m from the site.<br>Long-eared species (*Plecotus* sp.) EPS, WCA5, S7 & LBAP: One record, dated 1987, 1515m from the site.<br>Common pipistrelle (*Pipistrellus pipistrellus*) EPS, WCA5, S7 & LBAP: 50 records, dated between 1987 and 2012, the closest of which is 657m from the site.<br>Soprano pipistrelle (*Pipistrellus pygmaeus*) EPS, WCA5, S7 & LBAP: 30 records, all dated 2010, the closest of which is 600m from the site.<br>Pipistrelle species (*Pipistrellus* sp.) EPS, WCA5, S7 & LBAP: 4 records, dated between 1987 and 2003, the closest of which is 497m from the site.<br>Daubenton's bat (*Myotis daubentonii*) EPS, WCA5, S7 & LBAP: 4 records, dated 2010, the closest of which is 1260m from the site.<br>Natterer's bat (*Myotis nattereri*) EPS, WCA5, S7 & LBAP: One record, dated 2010, recorded 1202 from the site.<br>Myotis species (*Myotis* sp.) EPS, WCA5, S7 & LBAP: One record, dated 1992, recorded 1556m from the site.<br>Unknown bat species: 8 records, dated between 1985 and 2002, recorded 426m from the site. |
| **Amphibians** | Great crested newt (*Triturus cristatus*) EPS, WCA5, S7 & LBAP: 360 records, dated between 1988 and 2018, the closest of which is 273m from the site.<br>Smooth newt (*Lissotriton vulgaris*) WCA5 & LBAP: 261 records, dated between 1984 and 2018, the closest of which is 330m from the site.<br>Palmate newt (*Lissotriton helveticus*) WCA5 & LBAP: 138 records, dated between 1992 and 2018, the closest of which is 330m from the site.<br>Common toad (*Bufo bufo*) WCA5, S7 & LBAP: 111 records, dated between 1992 and 2018, the closest of which is 737m from the site.<br>Common frog (*Rana temporaria*) WCA5 & LBAP: 153 records, dated between 1985 and 2018, the closest of which is 330m from the site. |
| **Terrestrial mammals** | Badger (*Meles meles*) PBA & LBAP: 118 records, dated between 1985 and 2018, the closest of which is reported to be within the site.<br>Brown hare (*Lepus europaeus*) S7 & LBAP: One record, dated 2005, 2585m from the site.<br>European hedgehog (*Erinaceus europaeus*) S7 & LBAP: 30 records, dated between 1966 and 2014, the closest of which is 62m from the site.<br>European otter (*Lutra lutra*) EPS, WCA5, S7 & LBAP: One record, dated 2010, recorded 1060m from the site.<br>European polecat (*Mustela putorius*) S7 & LBAP: 6 records, dated between 1960 and 2015, the closest of which is 565m from the site,<br>Water vole (*Arvicola amphibious*) WCA5, S7 & LBAP: 5 records, dated between 1998 and 2003, the closest of which is 751m from the site.<br>Water shrew (*Neomys fodiens*) LBAP: 2 records, dated between 2013 and 2015, the closest of which is 782m from the site.<br>Pygmy shrew (*Sorex minutus*) LBAP: One record from 1997, recorded 782m from the site. |

| Taxon Group | Species Name and Designations[1] and Notes |
|---|---|
| **[1]Key to Codes:**<br>EPS = European Protected Species under the *Conservation of Habitats and Species Regulations 2017.*<br>Bern = Species listed on the Convention of the Conservation of European Wildlife and Natura Habitats (Bern Convention)<br>WCA5 = Species receives full protection under Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended).<br>S7 = Priority Species listed under Section 7 of the *Environment (Wales) Act 2016*<br>PBA = *Protection of Badgers Act 1992*<br>LBAP = Species listed on the Flintshire Biodiversity Action Plan | |

3.1.9 The presence of these protected and notable species within the wider area has been taken into account throughout this report.

## 3.2 Vegetation and Habitats

**General Description**

3.2.1 The approximately 9.8 hectare site is located to the west of the village of Ewloe and comprises fields of cattle and pony grazed improved grassland with hedgerow and scattered tree field boundaries. The site also encompasses a residential property and associated outbuildings and mown amenity grassland (lawn) at Ivy Cottage off Green Lane at the southern end of the site.

3.2.2 The northern site boundary meets Holywell Road. The eastern site boundary abuts existing residential development within Ewloe. The southern site boundary adjoins the rear of the properties off Green Lane. Beyond the western site boundary are fields of cattle grazed improved grassland.

3.2.3 A Phase 1 Habitat Survey map is appended at **Figure 2**. Photographs are appended at **Table 8.1**.

**Improved Grassland**

***Site A***

3.2.4 Refer to **Photos 1** and **2**. The four fields in Site A comprise cattle grazed improved grassland characterised by abundant and constant Perennial Rye-grass (*Lolium perenne*) and Yorkshire-fog (*Holcus lanatus*) with constant and frequent Rough Meadow-grass (*Poa trivialis*) and Creeping Buttercup (*Ranunculus repens*), frequent Common Bent (*Agrostis capillaris*), Meadow Foxtail (*Alopecurus pratensis*) and locally frequent White Clover (*Trifolium repens*) and False Oat-grass (*Arrhenatherum elatius*). Common Nettle (*Urtica dioica*) occurs at the field margins.

3.2.5 All four fields have a similar plant species composition, although the field at north-eastern corner of the site an area of lower lying and poorly drained land supports plant species more indicative of temporary waterlogged soil conditions such as Soft-rush (*Juncus effusus*), Brooklime (*Veronica beccabunga*), Bittersweet (*Solanum dulcamara*), Hairy Sedge (*Carex hirta*) and Floating Sweet-grass (*Glyceria fluitans*).

3.2.6 At the gateways to the fields the more frequently trampled ground is colonised by rosette species more tolerant of disturbance such as Pineappleweed (*Matricaria discoidea*), Greater Plantain (*Plantago major*), Knotgrass (*Polygonum aviculare*) and Annual Meadow-grass (*Poa annua*).

3.2.7 The improved grassland is characteristic of an MG7 *Lolium perenne* grassland NVC community (Rodwell, 1992) with local areas of the OV19 *Poa annua – Matricaria discoidea* community (Rodwell, 2000) at the gateways. A plant species list is appended at **Table 8.2**.

***Site B***

3.2.8 Site B comprises two fields of improved grassland, refer to **Photos 3** and **4**. The large area is separated into smaller units by electric fencing and is grazed by ponies. The grassland is characterised by abundant and constant Perennial Rye-grass with frequent and constant Yorkshire-fog and Rough Meadow-grass. Other species comprise frequent Creeping Buttercup and Broad-leaved Dock (*Rumex obtusifolius*) with locally frequent Timothy (*Phleum pratense*), Creeping Thistle (*Cirsium arvense*) and Soft-brome (*Bromus hordeaceus*).

3.2.9 Adjacent to the north-western boundary of the pony grazed grassland is a narrow strip of ungrazed grassland and disturbed ground. The vegetation is characterised by abundant and constant Greater Plantain and Rough Meadow-grass, frequent Perennial Rye-grass with locally abundant Creeping Thistle and locally frequent Creeping Bent (*Agrostis stolonifera*), Cock's-foot (*Dactylis glomerata*), Annual Meadow-grass and Timothy.

3.2.10 The improved grasslands are characteristic of an MG7 *Lolium perenne* grassland NVC community (Rodwell, 1992). A plant species list for the grazed and the ungrazed fields are appended at **Tables 8.3** and **8.4**.

**Amenity Grassland**

3.2.11 Refer to **Photo 5**. To the south-west of the buildings at Ivy Cottage is a mown lawn characterised by abundant and constant Perennial Rye-grass and frequent and constant Daisy (*Bellis perennis*), Common Bent, White Clover, Common Sorrel (*Rumex acetosa*) and Dandelion (*Taraxacum officinale* agg.) with occasional Common Cat's-ear (*Hypochaeris radicata*), Spear Thistle (*Cirsium vulgare*), Meadow Buttercup (*Ranunculus acris*) and Common Ragwort (*Senecio jacobaea*).

**Hedgerows and Boundary Features**

3.2.12 The field boundary hedgerows are similar in their plant species composition and typically comprise continuous Hawthorn (*Crataegus monogyna*) with frequently associated Dog-rose (*Rosa canina*), Hazel (*Corylus avellana*), Blackthorn (*Prunus spinosa*), Elder (*Sambucus nigra*) and Holly (*Ilex aquifolium*). Scattered mature trees of Pedunculate Oak (*Quercus robur*) are present, as annotated on **Figure 2**.

3.2.13 The herb layer is similar throughout the site and characterised by frequent Common Nettle, Cow Parsley (*Anthriscus sylvestris*), False Oat-grass, Cleavers (*Galium aparine*), Bramble (*Rubus fruticosus* agg.) and Creeping Thistle. Woodland herbs such as Wood Avens (*Geium urbanum*) and Male-fern (*Drypoteris filix-mas*) are present but only occasionally.

3.2.14 The hedgerows are characteristic of the W21 *Crataegus monogyna – Hedera helix* community of the NVC (Rodwell, 1991). Hedgerow plant species lists are appended at **Tables 8.5** to **8.7**. Assessment of the hedgerows in accordance with *The Hedgerows Regulations 1997* wildlife and landscape criteria is provided at **Tables 8.8** to **8.11**.

3.2.15 At the eastern boundary where the site meets properties off Circular Drive are scattered shrubs of Hawthorn and Holly with an understorey of Garlic Mustard (*Allaria petiolata*), Ivy (*Hedera helix*), Cleavers, Common Nettle, Bramble, White Dead-nettle (*Lamium album*), Cow Parsley, Cock's-foot and Common Couch (*Elytrigia repens*).

**Watercourse**

3.2.16 Refer to **Photo 9**. A short (70 metres) section of drain is present at the south-western corner of the site. The channel is approximately 1 metre wide with vertical earth banks to a height of 0.6 metres. Emergent and aquatic vegetation in the channel comprised of Floating Sweet-grass and Common Water-starwort (*Callitriche stagnalis*) with bankside Soft-rush.

**Invasive Plant Species**

3.2.17 No Japanese Knotweed or other species listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) was detected at the site.

## 3.3 Animal Life

**Badger**

3.3.1 An outlying badger sett (one entrance with a loose spoil pile, badger hairs and footprints, refer to **Photos 10** and **11**) was detected at the northern margin of the site (just within the site boundary)[1].

3.3.2 The cattle grazed improved grassland will provide foraging opportunities for badger present in the wider area.

3.3.3 The presence of badger activity at the site and local area is a consideration; this is discussed further in **Sections 4.4** and **5.4**.

**Bat Species**

***Habitat Assessment for Commuting and Foraging Bats***

3.3.4 Habitats such as the hedgerows, watercourse and grassland are suitable for use by foraging bats, and the trees, shrubs and hedgerows provide habitat connectivity across the site.

3.3.5 The improved grassland within the site is unlikely to provide an abundance or diversity of invertebrate prey, and is therefore considered to be of low suitability for use by foraging bats.

3.3.6 The habitats present may be suitable for and contribute to the wider foraging area of low numbers of common species of edge-feeding foraging bats, such as common pipistrelle (*Pipistrellus pipistrellus*), and also low numbers of species known to forage over open habitats and over wide areas, such as noctule (*Nyctalus noctula*).

3.3.7 A diverse range of species and / or a large number of bats are considered unlikely at the site owing to the absence of habitats such as woodland or tree-lined watercourses.

***Daylight Survey: Buildings***

3.3.8 Ivy Cottage and the associated out-buildings are described and assessed for their suitability for use by roosting bats below.

[1] The exact location is not disclosed in this report but can be provided to the locally planning authority as needed.

**Table 3.4: Description and Assessment of Buildings**

| **Building** (refer to **Figure 2**) | **Description** | **Suitability Assessment**[2] |
|---|---|---|
| **1: Ivy Cottage** | Refer to **Photos 12** to **14**.<br>Two storey brick cottage with rough cast render covered walls and a pitched slate covered roof. Timber fascia are present.<br>Gaps suitable for bat access were noted beneath the ridge copings; between the slates, between the slates and the wall tops at the roof verges and at the lead flashing around the base of the chimney.<br>No bat droppings were found around the external perimeter.<br>No survey of the interior was carried out. | Moderate |
| **2: Outbuilding** | Refer to **Photos 15** and **16**.<br>Single storey stone and brick outbuilding with a corrugated sheet monopitch roof.<br>Holes present in the elevation walls may provide opportunities for single bats.<br>No bat droppings were found around the external perimeter.<br>No survey of the interior was carried out. | Moderate |
| **3: Hay store** | Refer to **Photo 17**.<br>Steel and timber framed 3-sided store with a monopitch corrugated sheet covered roof.<br>No bats or bat droppings found outside or inside the building.<br>No cracks or crevices suitable for bat access. | Negligible |
| **4 and 5: Stables** | Refer to **Photos 18** to **20**.<br>Solid concrete block elevation and internal walls with a single ply corrugated sheet covered roof.<br>The internal walls are painted white which facilitated the search for droppings.<br>No bats or bat droppings found outside or inside the buildings. | Negligible |

3.3.9 Other buildings comprise timber sheds with felt and plastic sheeting covered roofs and a timber framed dog kennel; all assessed to be of negligible suitability for use by roosting bats.

***Trees***

3.3.10 Twenty trees are described and assessed for their suitability for use by roosting bats below.

[2] In accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn),* (Collins, J. (ed), 2016)

**Table 3.5: Description and Assessment of Trees**

| **Tree Number** (refer to **Figure 2**) | **Species** | **Description** | **Suitability Assessment** [3] |
|---|---|---|---|
| **T1** | Pedunculate Oak | Veteran trees with a dense cover of Ivy which may provide a potential roost feature (PRF) itself or be obscuring a PRF in the trunk | Moderate |
| **T2** | Grey Willow | Knot hole presence on south-eastern side of split branch at 3 metres from ground.<br>Closer inspection at height confirmed that the knot hole is blind | Negligible |
| **T3** | Pedunculate Oak | Mature tree with a very sparse Ivy cover.<br>Two knot holes / grazing damage detected on the west side of the main stem at 1 metre and 2.5 metres from ground level; close inspection confirmed both to be blind.<br>Upward facing developing knot hole on west side at lateral branch; dead branch still present so no cavity accessible yet.<br>Knot hole present at 6 metres high on east side of tree.<br>Dead wood present. | Low |
| **T4** | Pedunculate Oak | Refer to **Photo 22**.<br>Mature.<br>Large knot hole with dead wood on the east side at 8 metres above ground level.<br>Developing (but currently blind) knot hole 5 metres from ground level on at lateral branch at the south-eastern side. | Moderate |
| **T5** | Pedunculate Oak | Mature tree with sparse Ivy cover.<br>No PRF detected. | Low (on account of age of tree) |
| **T6** | Pedunculate Oak | Mature tree; no PRF detected. | Low (on account of age of tree) |
| **T7** | Pedunculate Oak | Mature tree; local areas of dead wood. | Low (on account of age of tree) |
| **T8** | Ash | Multi-stemmed; no PRF detected | Low (on account of age of tree) |
| **T9** | Pedunculate Oak | Mature tree; local dead wood but no PRF.<br>(All sides of tree could not be observed) | Low (on account of age of tree) |
| **T10** | Pedunculate Oak | Semi-mature tree; no PRF detected. | Low (on account of age of tree) |

[3] In accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn),* (Collins, J. (ed), 2016)

| Tree Number (refer to Figure 2) | Species | Description | Suitability Assessment [3] |
|---|---|---|---|
| **T11** | Ash | Double-stemmed; no PRF detected | Negligible |
| **T12** | Sycamore | No PRF detected | Negligible |
| **T13** | Pedunculate Oak | Mature. Local areas of dead wood; no PRF detected | Low (on account of age of tree) |
| **T14** | Pedunculate Oak | Refer to **Photo 23**.<br>Mature with Ivy cover.<br>Frost crack / split up the trunk on northern side. | Moderate |
| **T15** | Ash | Refer to **Photos 24** and **25.**<br>Veteran.<br>Knot hole approximately 4 metres from ground level on lateral branch (facing north).<br>Hole / split on underside of lateral branch approximately 8 metres from ground level.<br>Knot hole in 'elbow' of lateral branch. | High |
| **T16** | Ash | Semi-mature<br>Upward facing knot hole on north-eastern side at a height of 5 to 6 metres above ground. | Low |
| **T17** | Pedunculate Oak | Semi-mature tree with dead wood | Low |
| **T18** | Sycamore | Semi-mature tree with Ivy | Low |
| **T19** | Pedunculate Oak | Mature tree with local dead wood | Low |
| **T20** | Sycamore | Semi-mature tree; no PRF detected | Negligible |

**Bird Species**

3.3.11 Birds detected in the site on 26th June 2019 are listed below.

**Table 3.6: Bird Species Detected on 26th June 2019**

| Scientific Name | Common Name (number seen) | Location / Habitat | BOCC Status[1] | Priority Species? |
|---|---|---|---|---|
| *Columba palumbus* | Wood pigeon (8) | Feeding with the improved grassland | Green | No |
| *Corvus corone* | Carrion crow | Grassland | Green | No |
| *Corvus monedula* | Jackdaw | Surrounding residential properties | Green | No |
| *Erithacus rubecula* | Robin (1) | Hedgerow | Green | No |
| *Fringilla coelebs* | Chaffinch (1) | Hedgerow | Green | No |
| *Hirundo rustica* | Swallow (3) | Feeding over fields | Green | No |
| *Parus caeruleus* | Blue tit (3) | Hedgerow | Green | |
| *Parus major* | Great tit (2) | Hedgerow | Green | No |
| *Passer domesticus* | House sparrow (3) | Hedgerow | Red | Yes |

| Scientific Name | Common Name (number seen) | Location / Habitat | BOCC Status[1] | Priority Species? |
|---|---|---|---|---|
| *Pica pica* | Magpie (1) | Grassland | Green | No |
| *Sturnus vulgaris* | Starling (2) | Feeding in grassland | Red | Yes |
| *Sylvia communis* | Whitethroat (1) | Hedgerow | Green | No |
| *Troglodytes troglodytes* | Wren (1) | Hedgerow | Green | No |
| *Turdus merula* | Blackbird (1) | Field | Green | No |
| *Turdus philomelos* | Song thrush | Field | Red | Yes |
| [1]BOCC: Birds of Conservation Concern (Eaton, et al., 2015) | | | | |

3.3.12 All bird species recorded in June 2019 are likely to nest at the site or close by. The hedgerows and trees provide opportunities for nesting passerine bird including Species of Principal Importance.

3.3.13 No evidence of any ground nesting birds such as lapwing (*Vanellus vanellus*) was recorded in June 2019; it is considered that the undulating topography at the site is unsuitable for the attraction of the ground nesting bird species which prefer an all-round field of view at their nesting sites.

3.3.14 No evidence of use of the stable (Buildings 4 and 5) by nesting swallow was detected in June 2019; although the buildings are assessed to be suitable.

***Barn Owl***

3.3.15 No sign of nesting or roosting barn owl was detected during the inspection of the buildings, however the access restrictions to some buildings is recognised and has been taken into consideration in the recommendations provided at **Section 5.0**.

**Great Crested Newt and other Amphibians**

3.3.16 There are no ponds within the site or within a 300 metre radius of the site.

3.3.17 The Habitat Suitability Score (HSI) for the ponds (Ponds 1, 1b and 2) within the 500 metre radius are appended at **Table 8.12**.

3.3.18 Assuming the presence of great crested newt at these ponds, based on the distance between the site and the ponds, the presence of intervening physical barriers to amphibian migration such as the Holywell Road and the absence of any ponds to the south and south-west of the site that amphibians may be attracted to (i.e. the most direct route to move between pond would be to traverse the site) the presence of individual great crested newt within the site is reasonably discounted.

3.3.19 Development at the site will need to consider indirect effects of recreational pressures on the sites in the local area designated for the presence of great crested; this is discussed further below.

**Reptiles**

3.3.20 No reptile species were observed during the survey in June 2019.

3.3.21 The heavily managed habitats within the site provide poor quality habitat for sheltering, basking and hibernating reptiles. There are known records of reptiles in the local area and the presence of reptile species cannot be discounted at this stage.

**Water Vole**

3.3.22 The short section of the drain at the south-western area of the site is suitability habitat for water vole, although it is isolated from other watercourses. Further survey is necessary to determine the presence / absence of water vole.

**Brown Hare**

3.3.23 No brown hare were observed at the site or immediate surrounds.

## 4.0 EVALUATION AND ASSESSMENT

### 4.1 Introduction and Description of Proposals

4.1.1 This Preliminary Ecological Appraisal was commissioned to provide relevant information to promote the site for inclusion within the local development plan as a residential site.

4.1.2 **Section 4.2** provides an assessment of any impacts of the proposed development on the designated sites for nature conservation in the wider area. The ecological value of habitats within the site are evaluated at **Section 4.3**, and the presence of protected and notable species is considered at **Section 4.4**.

### 4.2 Designated Sites for Nature Conservation

4.2.1 Direct adverse effects on the integrity of the Deeside and Buckley Newt Sites SAC and Connah's Quay Ponds and Woodland SSSI located a minimum of 165 metres to the north of the site boundary and the conservation status of their features of special interest (old sessile oak woodlands and the great crested newt) will be avoided by the proposals.

4.2.2 The need to consider indirect effects on the designated sites for nature conservation as a result of water pollution, impacts on habitat connectivity and recreational pressures is essential. A test of likely significant effect will be required as part of a planning application submission to assess the potential for the development to significantly affect the conservation features of the SAC indirectly. If a likely significant effect is determined then mitigation will be required. Guidance is provided in **Section 5.6** to demonstrate the ways this can be achieved at the site.

4.2.3 Direct effects on non-statutory designated sites for nature conservation will be avoided. The proximity of the site to the New Inn Brook Wood Wildlife Site is recognised and protection of the woodland habitats will be achieved, as described at **Section 5.0**.

### 4.3 Vegetation and Habitats

4.3.1 None of the habitats within the site are of significant interest in terms of their plant species composition or are representative of semi-natural habitat. The NVC communities present are typical of the geographical area and the agriculturally managed conditions present. The site contains only common and widespread plant species.

4.3.2 All hedgerows are examples of Priority Habitat. One hedgerow (Hedgerow 2) meets the criteria to qualify as 'important' in accordance with *The Hedgerows Regulations 1997* wildlife and landscape criteria.

4.3.3 In addition, the hedgerows are of local value as they add structural diversity and are suitable for use by breeding birds and foraging and commuting bats and other fauna.

4.3.4 No other Priority Habitats are present at the site.

## 4.4 Protected Species and Other Wildlife

4.4.1 This preliminary ecological appraisal has confirmed badger activity at the site. Based on where the sett is (i.e. on the edge of the site) a badger mitigation strategy comprising the avoidance of the sett and an associated buffer can be accommodated by a site layout.

4.4.2 A comprehensive licensed bat survey of the buildings at the farmhouse / stables has not been carried out at this stage. Based on the preliminary external assessment, the timber kennels, sheds and stables are assessed to be of negligible suitability for use by roosting bats and the outbuilding (Building 2) and Cottage (Building 1) are of moderate suitability; further survey will be required to determine the status of roosting bats at the site and to inform a mitigation strategy (if required), should these buildings be affected.

4.4.3 A number of hedgerow trees at the site support features with suitability for use by roosting bats (1 with high suitability, 3 moderate suitability and 12 with low suitability). Further survey will be required at individual trees scheduled for removal to inform a planning application, refer to **Section 5.3**.

4.4.4 The trees, shrubs and hedgerows provide favourable foraging and nesting habitat for passerine species of birds detected within the site and the wider area, including Priority Species. Breeding bird surveys may be required to support a planning application.

4.4.5 Reptile presence / absence surveys may be required to support a planning application; mitigation is considered to be feasible if reptiles are detected.

4.4.6 Based on the habitats present and the results of the desktop study and data search the presence of an adverse effects on other protected species are reasonably scoped out at this stage.

## 4.5 Identification of Potential Impacts

4.5.1 Based on the results of the baseline surveys carried out to date, the potential impacts of a residential development on the identified features of ecological interest are identified as:

a. Habitat Loss including loss of Priority Habitat (Hedgerows) and habitat used by protected species;

b. Habitat loss and disturbance of protected species at an unacceptable level;

c. Risk of pollution, particularly at the construction phase;

d. Severance of habitat connectivity, both within the site and within the local area;

e. Increased risk of recreational pressures, particularly at the designated sites for nature conservation; and

f. Disturbance as a result of lighting, for example.

4.5.2 It is considered that embedded and additional mitigation to avoid / minimise to potential effects of the identified impacts on the flora and fauna at the at the site and the integrity of the designated sites for nature conservation in the local area can be achieved to ensure policy compliance, as described below.

## 5.0 FURTHER ACTIONS, MITIGATION, RECOMMENDATIONS AND ECOLOGICAL ENHANCEMENT

### 5.1 Introduction

5.1.1 The mitigation and recommendations outlined in this section aim to demonstrate the feasibility of residential development at the site while achieving the avoidance of unacceptable impacts on the identified ecological considerations namely the designated sites for nature conservation, Priority Habitat and protected species.

5.1.2 The guidance aims to demonstrate that development can be achieved in accordance with all wildlife legislation, Natural Resources Wales guidance, the principles of *Chapter 6 of Planning Policy Wales* (Welsh Government, December 2018) and *Technical Advice Note (TAN) 5: Nature Conservation and Planning*, local planning policy and best practice.

5.1.3 The recommendations address the potential impacts identified in **Section 4.5** and are appropriate and proportionate. Where possible, opportunities to enhance the ecological interest and habitat connectivity and seek biodiversity gain through appropriate landscape planting and habitat creation have been identified.

### 5.2 Feasibility of Development and Recommendations for Site Layout

5.2.1 Based on this preliminary ecological assessment it is concluded that, subject to topographical, physical, drainage and servicing constraints, development over the areas of improved grassland of low ecological value can be achieved whilst conserving, protecting and securing the creation of complementary habitat to the designated sites for nature conservation.

5.2.2 To achieve residential development at the site the following recommendations in relation to the site layout are made:

a. Retain all hedgerows and hedgerow trees, where feasible;

b. Where removal of trees and hedgerows is necessary, i.e. to facilitate the creation of access roads and visibility splays, then areas of compensatory native planting at an equal or greater length of hedgerow lost must be included within the site layout in suitable locations to provide habitat connectivity across the site;

c. Alignment of properties to create 'pockets' of contiguous gardens as stepping stones for wildlife through the site;

d. Where other features are necessary, such as a sustainable drainage scheme (SuDS), opportunities to enhance their biodiversity potential by use of appropriate grassland seed mixes and landscape planting, will be maximised;

e. Accommodate the badger sett and an undeveloped buffer of at least 30 metres (this can be combined with the areas to be allocate for informal walking and recreation);

f. Allocate significant areas of the site for informal recreation such as walking and landscape appropriately to secure areas of land for recreation away from the designated sites for nature conservation;

g. Secure a strong green infrastructure within the site and along the site boundaries, particularly at the western and north-western margins to improved habitats connectivity between the Deeside and

Buckley Newt Sites SAC and the Buckley Claypits and Commons SSSI, by conservation of existing corridors (such as hedgerows) and new native landscape planting;

h. Create habitats that are complementary to the designated sites for nature conservation in the local area such as woodland, neutral grassland and ponds;

i. Planting of a wildflower grassland seed mixes over significant areas of the sites will enhance opportunities for animal life and minimise the maintenance regime. The objectives of the grassland seeding will be to provide a habitat for wildlife such as invertebrates, small mammals and amphibians;

j. Align and orientate properties to face the retained and new habitats (rather than backing on to the habitats) to avoid post-development impacts associated with garden extensions and fly tipping; and

k. Avoidance of concrete based garden boundary fencing and use of timber fencing with gaps of 0.15 metres beneath to permit passage of wildlife, e.g. hedgehog, a Priority Species, and amphibians between gardens;

l. Ensure any lighting strategy is in accordance with current guidance and excessive illumination of the habitats is avoided.

## 5.3 Further Survey

5.3.1 To progress a planning application at the site the scope of ecological surveys listed at **Table 5.1**, below are recommended.

**Table 5.1: Further Surveys to Inform Planning Application at the Site**

| Survey Type | Notes |
|---|---|
| Extended Phase 1 Habitat and Vegetation Survey | Subject to the date of submission of a planning application updated vegetation surveys of the habitats within and adjacent to the site will be required to inform a planning application; this will include an updated invasive plant species survey.<br>Timing: Any time of year. |
| Breeding Bird Surveys | Breeding bird surveys may be required.<br>Timing: April to June inclusive. |
| Badger | An updated badger survey is required to inform any development proposals and a comprehensive mitigation strategy.<br>Timing: Any time of year. |
| Bat Surveys | Subject to the development proposals and the extent of any tree removal and / or arboricultural works such as crown lifting, a daylight licensed bat survey at height of the relevant trees identified by this preliminary appraisal may required.<br><br>Any proposals to affect the buildings, particularly Buildings 1 and 2 will need to be informed by a comprehensive daylight licensed bat survey and the relevant number of bat activity surveys carried out at the appropriate time of year, as specified in the *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Collins, J. (ed), 2016).<br><br>Bat activity surveys, comprising transect surveys and static detector surveys may be required.<br>Timing: May to mid-September inclusive. |
| Reptile Presence / Absence Surveys | May be required.<br>Timing: April to October inclusive. |

| Survey Type | Notes |
|---|---|
| Water Vole Presence / Absence Surveys | If there is an intention to direct surface water to the on-site drain or to an off-site watercourse, water vole surveys may be necessary.<br>Timing: March to June and September to October inclusive. |

5.3.2 If the surveys detected the presence of roosting bats or other protected species, then a suitable mitigation strategy will be required to determine how the proposals can proceed whilst taking into account the presence of that protected species. Based on the size of the site it is considered that appropriate and proportionate mitigation is entirely feasible.

## 5.4 Construction Environment Management Plan (CEMP) for Biodiversity

5.4.1 To secure the protection of retained habitats and general best practice, any approved development at the site will need to be accompanied by a Construction Environment Management Plan (CEMP) for Biodiversity. As a minimum, the Plan will outline the following:

**Tree Protection**

5.4.2 During the construction phase, temporary protective demarcation fencing will be used to protect the trees and shrubs to be retained. The fencing must extend outside the canopy of the retained trees and must remain in position until all areas have been developed to ensure protection is provided throughout the construction phase.

5.4.3 The fencing will be in accordance with BS5837:2012 Trees in Relation to Design, Demolition and Construction: Recommendations (BSI, 2012).

**Protection of Water Quality**

5.4.4 In the absence of updated guidance, the following Pollution Prevention Guidelines (PPG) will be adhered to at any works near the drain:

a. PPG1: Basic good environmental practices (Environment Agency, 2013);

b. PPG5: Works in, near or over watercourses (Environment Agency, 2014);

c. PPG6: Construction and demolition sites (Environment Agency, 2012); and

d. PPG7: Operating refuelling sites (Environment Agency, 2011).

**Great Crested Newt Reasonable Avoidance Measures**

5.4.5 The following reasonable avoidance measures will need to be applied at the site (extracted from Appendix IV of Supplementary Planning Guidance 8a):

a. As part of the site induction process, all staff working on site will be made aware of the potential presence of great crested newts on site and their status as a UK and European protected species;

b. Areas of tall rough grassland and scrub will be strimmed to a height of 150mm. All arising will be removed and these areas will then be left undisturbed for at least 48 hours;

c. During the works, materials such as stacks of bricks, wood, tiles etc. must not be stored directly on the ground around the building as there will be a risk of GCN seeking shelter within the stacks; the materials should be stored on wooden pallets or on trailers (or elevated by similar means) so that GCNs will not crawl into them;

d. All trenches, or holes should not be left open overnight. They should either be backfilled or covered and the edges sealed to prevent amphibians getting trapped overnight. They should be checked in the morning prior to work restarting; and

e. If a great crested newt is identified during any of the above operations, development may need to be suspended until a development licence is obtained.

**Mitigation Strategy and Best Practice Measures in Relation to Badger**

5.4.6 Subject to any licensing requirements in relation to the identified badger sett, as badger activity is known to be present in the area the following best practice measures are applicable:

a. No machinery or construction operations must be carried out beyond the protective demarcation fencing identifying any sett areas. Ecological guidance must be sought if works are necessary beyond the fencing;

b. No trenches must be left open overnight. Trenches or holes must be covered with a board or fitted with a means of escape (such as ramped edge or a sloping plank of timber). This will ensure that any inquisitive badger do not become trapped;

c. Any pipes must be stored with caps on (to prevent badger entry);

d. No fires must be lit at the site; and

e. Any chemicals or harmful materials must be stored so that they cannot be accessed by inquisitive badger.

**Protection of Nesting Birds**

5.4.7 All wild birds are protected under the *Wildlife and Countryside Act 1981* (as amended) while they are breeding. It is advised that any works such as vegetation clearance that will affect habitats suitable for use by nesting birds are scheduled to commence outside the bird nesting season. Commencement of works in the nesting season must be informed by a pre-works nesting bird survey, carried out by a suitably experienced ecologist. The bird breeding season typically extends between March to August inclusive.

5.4.8 If breeding birds are detected the ecologist will issue guidance in relation to the protection of the nesting birds in conjunction with the scheduled works. This may involve cordoning off an area of the site until the young birds have fledged.

**Lighting and Bats**

5.4.9 Any lighting to be used at the site during construction should be directional and screened where possible, the guidance at **Section 5.5** is of relevance.

**Habitat Connectivity and Fence Panels**

5.4.10 To encourage movement of wildlife through and around the site at the post-development phase it is advised that plot boundary fencing is not installed flush to the ground. Gaps of 0.10 to 0.15 metres high should be left to permit the movement of fauna such as amphibians and hedgehog between gardens.

## 5.5 Bats

### Development Lighting Design

5.5.1 The lighting scheme to be implemented at the developed site must involve the use of appropriate products and screening, where necessary, to ensure no excessive artificial lighting shines over retained hedgerows, trees, areas of ecological enhancement and any landscape planting, as lighting overspill may deter use by wildlife such as foraging bats.

5.5.2 The lighting scheme will be designed with reference to current guidance, namely:

a. *Guidance Note 8: Bats and Artificial Lighting in the UK* (Institution of Lighting Professionals & Bat Conservation Trust, 2018); and

b. Bats and lighting: Overview of current evidence and mitigation guidance (Stone, 2014).

### Trees

5.5.3 It is recommended that all of the trees within the site and on the site margins are retained and accommodated within the site design. If removal is necessary and / or arboricultural works are necessary then further survey / assessment of the identified trees for their suitability for use by roosting bats will be necessary.

## 5.6 Consideration of the Designated Sites for Nature Conservation

### Supplementary Planning Guidance 8a

5.6.1 Owing to the proximity of the site to the Deeside and Buckley Newt Sites SAC and Connah's Quay Ponds and Woodland SSSI the mitigation for great crested newt and the designated sites for nature conservation will be in accordance with Supplementary Planning Guidance (SPG) 8a[4].

5.6.2 Section 4b of SPG8a states:

*"Regulation 61 of the Conservation of Habitats and Species Regulations 2017 (as amended) requires that any application likely to significantly affect a European Site is subject to an Appropriate Assessment (AA) of the implications of the proposal on the site's conservation objectives as detailed in the Core Management Plan for the site the planning authority must ascertain that the plan or project does not have a likely significant effect, either alone or in combination with other plans or projects by first conducting a Test of Likely Significance (ToLS).*

*Habitat creation, enhancement and future management may be required to prevent any significant effect. Table 3, provides typical standard habitat creation and future management requirements to provide mitigation on different types of development. Reference is also made to Appendix II: Management Costs, which outlines typical costs for providing such mitigation solutions.*

*The intensification of residential development within the Buckley and Connahs Quay areas, including the cumulative effect from small scale residential development is placing additional pressures on the favourable conservation status of the SAC. There are no specific studies which demonstrate that recreational pressure has an adverse impact on amphibian populations, but casual observations indicate*

[4] https://www.flintshire.gov.uk/en/PDFFiles/Planning/SPG-8a-Great-Crested-Newt-Mitigation-Requirements.pdf

*a potential link, and in the absence of evidence local authorities are required to be precautionary in their response."*

5.6.3 The SPG provides majority of the site lies within the SAC buffer as defined by SPG8a. In accordance with SPG8a it is understood that the following mitigation would be expected (highlighted yellow).

**Table 3 - Development affecting designated sites with GCN as the main feature Refer to Table 1 and Appendix I**

| Development type | Major Development | Minor Development | |
|---|---|---|---|
| | *Full, Outline, Approved Matters/etc*<br>*Mineral & Waste, Transport applications etc* | *Up to 10 dwellings* | *Extension/ Conservatory/ Garage* |
| A2 - Directly affects known SAC with GCN as key feature | Like for like principle; Need to provide replacement habitat capable of its purpose e.g. breeding pond and terrestrial habitats prior to destruction of existing, so that the "favourable conservation status" of the population is maintained.<br>Also need to demonstrate through a "ToLS or AA that the development will not significantly affect the Conservation Features of the SAC directly or indirectly. As well as replacement habitat, this will involve measures to avoid indirect effects such as increased recreational pressures through the provision of informal recreational areas. This is referred to as the "thirds principle": 1/3 development, 1/3 mitigation, 1/3 informal recreation. | | |
| B2 - Adjacent to, and up to 250m of GCN SACs | Mitigate for loss of habitat type on a like for like basis –<br>Refer to management costs within appendix II.<br>Also need to demonstrate through a ToLS or AA that the development will not significantly affect the Conservation Features of the SAC directly or indirectly. As well as replacement habitat, this will involve measures to avoid indirect effects such as increased recreational pressures through the provision of informal recreational areas. | | Only need to undertake a ToLS dependant on suitability of site to be lost.<br>Undertake Reasonable avoidance measures (RAMs) to prevent harm to GCN (see appendix 4).<br>This depends on suitability of site if poor e.g. hardstanding / amenity grassland then a note to applicant might suffice. |
| C2 - 250m – extent of SAC Buffer (Appendix I) Refer to local knowledge, Cofnod and "likelihood maps" (see Appendix III) | Mitigate for loss of habitat type on a like for like/50% basis –<br>Refer to Appendix II of management costs.<br>Also need to demonstrate through a ToLS or AA that the development will not significantly affect the Conservation Features of the SAC directly or indirectly. | | Unless the habitat lost represents key connecting habitat or important habitat type, test of significance is not required.<br>Note to applicant will generally suffice. |
| D2 - Outside Newt Site Buffer (see Appendix I) | Mitigation generally not required unless key connecting habitats are affected. Indirect effects of large developments still need to be assessed through a ToLS | N/A | N/A |

5.6.4 It is concluded that mitigation for great crested newt and the designated sites for nature conservation is feasible, however this will involve the allocation of an area of the site for recreation and habitat creation. This can be combined with the sustainable surface water drainage system and areas retained for other species such as badger. It is considered that this also provides a significant opportunity to enhance the habitat connectivity particularly along the northern and north-western margin of the site to enhance green infrastructure and function and satisfy relevant planning policy.

**Advisory Leaflet**

5.6.5 To address the potential risk of an increased recreational pressure on the surrounding woodlands and great crested newt habitats at the designated sites for nature conservation, it is recommended that an advisory leaflet is distributed in the sale pack of the properties. The leaflet will provide the following guidance:

a. Advise that the properties and site are within proximity to the designated sites for nature conservation but clearly set out the value, importance and sensitivity of the areas, identify the potentially damaging operations and also outline a 'responsible use code' such as advising the need to keep dogs on leads and keeping to the footpaths, for example; and

b. Identify other areas for recreation / dog walking, away from the sensitive areas with maps and walking distances, as needed.

**Signage**

5.6.6 The information presented in the Advisory Leaflet could also be presented on interpretation boards to be installed along footpaths and other appropriate areas in the site.

## 5.7 Achieving a Net Gain for Biodiversity

**Site Design**

5.7.1 In addition to accommodating the conservation the existing hedgerows and trees, where possible, it is advised that additional areas of the site may be required for habitat creation, for example conversion of improved grassland to species-rich grassland will achieve a biodiversity gain and provide habitat for feeding and breeding invertebrates.

**Achieving Opportunities for Biodiversity within the Built Environment**

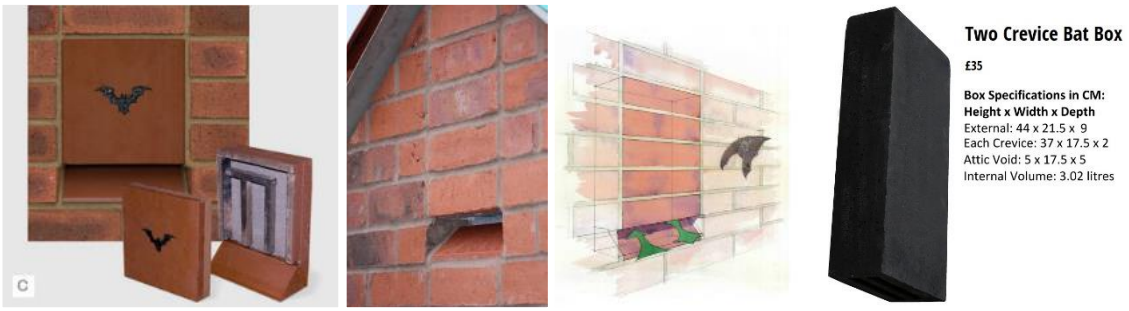
5.7.2 Opportunities for wildlife not currently present at the site can be provided within the built environment. This may include, for example:

***Roosting Opportunities for Bats***

5.7.3 It is recommended that the residential site incorporates commercially available bat access panels at the new properties.

5.7.4 The bat access panels should be sited at least four metres above ground level, ideally facing or close to areas of landscape planting or existing linear features. The access panels should not be positioned over windows or doorways where bat droppings may become a nuisance. An ecologist will advise on appropriate positions for the bat access panels once the site layout is available.

5.7.5 Suitable bat access panels (or externally mounted boxes) are available from NHBS Ecology or Greenwood's Ecohabitats and are presented at **Insert 1**, below:




***Insert 1:*** *Examples of commercially available bat access panels and externally mounted boxes*

***Left to right:*** *IBstock Enclosed Bat Box 'c' (left); Habibat Bat Access Panels (centre left and centre right) and Greenwood's Ecohabitats box (right)*

***Nesting Opportunities for Birds***

*House Sparrow*

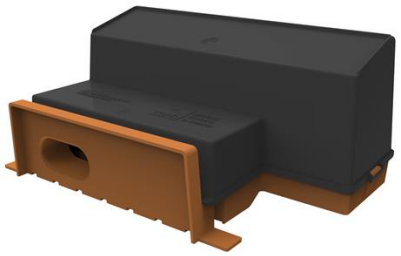
5.7.6 House sparrows are associated with suburban areas. Monitoring suggests a severe decline in the UK house sparrow population, estimated as dropping by 71 per cent between 1977 and 2008 with substantial declines in both rural and urban populations (RSPB, 2018).

5.7.7 The installation of house sparrow terrace nest boxes is recommended at the new properties. The boxes will be not be positioned over windows or doorways where droppings may become a nuisance. RSPB advice states that boxes should ideally be sited facing north to east, to avoid exposure to direct sunlight, which may cause overheating of chicks in the nest. An example of a suitable house sparrow bird box is given below:


***Insert 2:*** *Schwegler 1SP House Sparrow Nesting Terrace*

*Swift*

5.7.8 Swift nest boxes should be installed beneath the eaves of taller properties, as shown in **Insert 3**, below.



***Insert 3:*** *Manthorpe GSWB Swift Nest Box*

***Landscape Planting***

5.7.9 It is recommended that the landscape planting within the residential site is composed from native species that are complementary to the neighbouring woodlands and species known to be of value for the attraction of wildlife such as trees that support blossom and fruit which will attract insects. Suitable species are presented below.

**Table 5.2: Suitable Native Species for Tree and Shrub Planting**

| Scientific Name | Common Name | Scientific Name | Common Name |
|---|---|---|---|
| *Acer campestre* | Field Maple | *Prunus spinosa* | Blackthorn |
| *Corylus avellana* | Hazel | *Rosa arvensis* | Field Rose |
| *Crataegus monogyna* | Hawthorn | *Rosa canina* | Dog-rose |
| *Ilex aquifolium* | Holly | *Sambucus nigra* | Elder |
| *Malus sylvestris* | Crab Apple | *Sorbus aucuparia* | Rowan |
| *Prunus avium* | Wild Cherry | *Ulmus glabra* | Wych Elm |
| *Prunus padus* | Bird Cherry | *Viburnum opulus* | Guelder Rose |

5.7.10 The understorey and ground cover planting design should be prepared to optimise the attraction of invertebrates such as feeding bumblebees and butterflies. Where possible the use of native species should be maximised but where necessary non-native species known to be attractive to invertebrates should be used.

## 5.8 Long-term Habitat Management

5.8.1 Development proposals provide an opportunity to secure the positive management of the retained and created habitats in accordance with conservation objectives.

5.8.2 These actions can be described in a practical Habitat Management Plan and secured by way of a Section 106 Agreement or similar.

# 6.0 CONCLUSION

6.1 The preliminary ecological appraisal demonstrates that a residential development at Ewloe Green is feasible and acceptable in accordance with ecological considerations and Planning Policy Wales and Technical Advice Note (TAN) 5: Nature Conservation and Planning. No significant ecological constraints on the development of the site have been identified.

6.2 In the presence of an appropriately designed scheme that takes into account the requirements of SPG8a it is concluded that the allocation and development of the site at Ewloe Green to residential properties can be achieved with no significant adverse direct effect on the integrity of the statutory designated sites for nature conservation and the conservation status of their features of interest.

6.3 Similarly, in accordance with SPG8a, appropriate and proportionate mitigation for indirect effects on the designated sites for nature conservation associated with recreational pressures, either alone or in-combination with other schemes, is achievable in the presence of an appropriately designed scheme (or through a combination of on-site provision and off-site contribution).

6.4 Significant adverse effects on other protected species namely badger and nesting birds (and possibly roosting bats, water vole and reptile species ,subject to the results of further surveys) will be avoided and measures for Priority Species will be accommodated within the proposals.

6.5 Development at the site will secure an opportunity to implement beneficial measures such as habitat management and habitat creation that will conserve and enhance habitats for wildlife such as birds and bats, with the aim of complementing the habitats in the wider area and providing a measurable net gain in biodiversity.

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## 8.0 APPENDIX: TABLES AND FIGURES

### Table 8.1: Table of Photographs

**Photo 1:** Improved grassland with hedgerows and scattered trees at Site A

**Photo 2:** Improved grassland at Site A

**Photo 3:** Pony grazed improved grassland at Site B

**Photo 4:** Unmanaged improved grassland at Site B

**Photo 5:** Lawn of amenity grassland at Ivy Cottage

**Photo 6:** Hedgerow 1 at Holywell Road

**Photo 7:** Mature hedgerow trees

**Photo 8:** Hedgerow 10 at Green Lane

**Photo 9:** Drain

**Photo 10:** Outlier badger sett

**Photo 11:** Outlier badger sett

**Photo 12:** Building 1: Ivy Cottage

**Photo 13:** Building 1: Ivy Cottage

**Photo 14:** Gaps for bat access beneath the ridge copings at Ivy Cottage

**Photo 15:** Building 2

**Photo 16:** Gaps in the stone elevation wall at Building 2

**Photo 17:** Building 3

**Photo 18:** Building 4

**Photo 19:** Building 5

**Photo 20:** Interior of Buildings 4 / 5

**Photo 21:** Timber sheds

**Photo 22:** Potential roost feature at Tree 4

**Photo 23:** Potential roost feature at Tree 14

**Photo 24:** Potential roost feature at Tree 15

**Photo 25:** Potential roost feature at Tree 15

**Photo 26:** Pond 1

**Photo 27:** Pond 1b

**Photo 28:** Pond 2

**Table 8.2: Plant Species List for the Improved Grasslands at Site A**

| Scientific Name | Common Name | DAFOR[1] | Cover |
|---|---|---|---|
| *Achillea millefolium* | Yarrow | VLF | <1% |
| *Agrostis capillaris* | Common Bent | F* | 5% |
| *Alopecurus geniculatus* | Marsh Foxtail | VLA | <1% |
| *Alopecurus pratensis* | Meadow Foxtail | F | 10% |
| *Arrhenatherum elatius* | False Oat-grass | LF | 5% |
| *Calystegia sepium* | Hedge Bindweed | R | <1% |
| *Capsella bursa-pastoris* | Shepherd's-purse | VLF | <1% |
| *Carex hirta* | Hairy Sedge | VLF | <1% |
| *Carex otrubae* | False Fox-sedge | R | <1% |
| *Cerastium fontanum* | Common Mouse-ear | VLF | <1% |
| *Cirsium arvense* | Creeping Thistle | LA | 5% |
| *Cirsium vulgare* | Spear Thistle | O | <1% |
| *Cynosurus cristatus* | Crested Dog's-tail | LF | 2% |
| *Dactylis glomerata* | Cock's-foot | LF | 5% |
| *Elytrigia repens* | Common Couch | VLA | <1% |
| *Geranium dissectum* | Cut-leaved Crane's-bill | O | <1% |
| *Geranium molle* | Dove's-foot Crane's-bill | O | <1% |
| *Glyceria fluitans* | Floating Sweet-grass | VLF | <1% |
| *Holcus lanatus* | Yorkshire-fog | A* | 10% |
| *Juncus inflexus* | Hard Rush | R | <1% |
| *Lolium perenne* | Perennial Rye-grass | A* | 50% |
| *Matricaria discoidea* | Pineappleweed | VLA | <1% |
| *Phalaris arundinacea* | Reed Canary-grass | VLA | <1% |
| *Plantago major* | Greater Plantain | LVA | <1% |
| *Poa annua* | Annual Meadow-grass | LF | <1% |
| *Poa trivialis* | Rough Meadow-grass | F* | 10% |
| *Polygonum aviculare* | Knotgrass | VLF | <1% |
| *Potentilla anserina* | Silverweed | VLF | <1% |
| *Ranunculus repens* | Creeping Buttercup | F* | 5% |
| *Rumex obtusifolius* | Broad-leaved Dock | O | 2% |
| *Stellaria media* | Common Chickweed | O | <1% |
| *Taraxacum officinale* agg. | Dandelion | O | <1% |
| *Trifolium pratense* | Red Clover | VLA | <1% |
| *Trifolium repens* | White Clover | LF | 5% |
| *Urtica dioica* | Common Nettle | LA | 5% |
| *Veronica beccabunga* | Brooklime | VLF | <1% |

[1]Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

**Table 8.3: Plant Species List for the Pony Grazed Grasslands at Site B**

| Scientific Name | Common Name | DAFOR[1] | Cover |
|---|---|---|---|
| *Agrostis stolonifera* | Creeping Bent | F* | 5% |
| *Alopecurus geniculatus* | Marsh Foxtail | VLA | 10% |
| *Bromus hordeaceus* | Common Soft-brome | LF | 2% |
| *Cirsium arvense* | Creeping Thistle | F/LA* | 25% |
| *Epilobium hirsutum* | Great Willowherb | VLF | <1% |
| *Holcus lanatus* | Yorkshire-fog | F* | 10% |
| *Juncus bufonius* | Toad Rush | VLF | 1% |
| *Lolium perenne* | Perennial Rye-grass | A* | 30% |
| *Matricaria discoidea* | Pineappleweed | VLA | 1% |
| *Persicaria maculosa* | Redshank | VLF | 5% |
| *Phleum pratense* | Timothy | LF | <1% |
| *Plantago major* | Greater Plantain | VLA | 5% |
| *Poa annua* | Annual Meadow-grass | LF | 1% |
| *Poa trivialis* | Rough Meadow-grass | F/LA* | 25% |
| *Polygonum aviculare* | Knotgrass | VLF | 1% |
| *Ranunculus repens* | Creeping Buttercup | F | 2% |
| *Rumex obtusifolius* | Broad-leaved Dock | F | 5% |
| *Stellaria media* | Common Chickweed | VLF | <1% |
| *Trifolium pratense* | Red Clover | VLF | 1% |
| *Trifolium repens* | White Clover | VLF | 2% |

[1]Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

**Table 8.4: Plant Species List for the Ungrazed Grassland in Site B**

| Scientific Name | Common Name | DAFOR[1] | Cover |
|---|---|---|---|
| *Agrostis capillaris* | Common Bent | LF | 5% |
| *Agrostis stolonifera* | Creeping Bent | LF | 5% |
| *Alopecurus geniculatus* | Marsh Foxtail | LA | 5% |
| *Arrhenatherum elatius* | False Oat-grass | LF | 2% |
| *Capsella bursa-pastoris* | Shepherd's-purse | LF | 2% |
| *Cerastium fontanum* | Common Mouse-ear | VLF | <1% |
| *Cirsium arvense* | Creeping Thistle | LA | 5% |
| *Dactylis glomerata* | Cock's-foot | LF | 10% |
| *Digitalis purpurea* | Foxglove | VLF | <1% |
| *Epilobium hirsutum* | Great Willowherb | VLA | <1% |
| *Gnaphalium uliginosum* | Marsh Cudweed | VLA | <1% |
| *Heracleum sphondylium* | Hogweed | R | <1% |
| *Holcus lanatus* | Yorkshire-fog | F | 5% |
| *Juncus bufonius* | Toad Rush | VLF | <1% |
| *Lapsana communis* | Nipplewort | O | <1% |
| *Lolium perenne* | Perennial Rye-grass | F | 10% |
| *Matricaria discoidea* | Pineappleweed | LA | 30% |
| *Persicaria maculosa* | Redshank | VLF | <1% |
| *Phleum pratense* | Timothy | LF | <1% |
| *Plantago major* | Greater Plantain | A* | 30% |
| *Poa annua* | Annual Meadow-grass | LF | 5% |
| *Poa trivialis* | Rough Meadow-grass | A* | 25% |
| *Polygonum aviculare* | Knotgrass | LF | <1% |
| *Ranunculus repens* | Creeping Buttercup | VLF | <1% |
| *Rumex obtusifolius* | Broad-leaved Dock | O | <1% |
| *Senecio vulgaris* | Groundsel | VLA | <1% |
| *Stellaria media* | Common Chickweed | VLA | <1% |
| *Trifolium pratense* | Red Clover | VLF | <1% |
| *Trifolium repens* | White Clover | VLA | <1% |
| *Tripleurospermum inodorum* | Scentless Mayweed | VLA | <1% |
| *Veronica arvensis* | Wall Speedwell | R | <1% |
| *Veronica persica* | Common Field-speedwell | R | <1% |

[1]Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

**Table 8.5: Plant Species List for Hedgerows 1 to 4**

| | | Hedgerow 1 | | Hedgerow 2 | | Hedgerow 3 | | Hedgerow 4 | |
|---|---|---|---|---|---|---|---|---|---|
| **Scientific Name** | **Common Name** | **DAFOR** | **% cover** | **DAFOR** | **% cover** | **DAFOR** | **% cover** | **DAFOR** | **% cover** |
| *Acer pseudoplatanus* | Sycamore | R | <1% | - | - | - | - | - | - |
| *Corylus avellana* | Hazel | R | <1% | F | 20% | - | - | O | 5% |
| *Crataegus monogyna* | Hawthorn | A* | 60% | F/LA* | 30% | A* | 20% | A* | 30% |
| *Ilex aquifolium* | Holly | - | - | LA | 10% | A* | 60% | LA | 30% |
| *Malus* sp. | Apple | - | - | LF | 10% | - | - | - | - |
| *Prunus spinosa* | Blackthorn | A* | 80% | A* | 20% | - | - | LA | 30% |
| *Quercus robur* | Pedunculate Oak | - | - | - | - | - | - | F | 10% |
| *Rosa canina* | Dog-rose | LF | 5% | O | 1% | LF | 5% | O | <1% |
| *Salix cinerea* | Grey Willow | VLF | <1% | - | - | - | - | - | - |
| *Sambucus nigra* | Elder | R | <1% | LF | 5% | F | 10% | O | <1% |
| **Herb Species** | **Herb Species** | | | | | | | | |
| *Achillea millefolium* | Yarrow | VLA | <1% | - | - | - | - | - | - |
| *Agrostis capillaris* | Common Bent | - | - | - | - | LF | <1% | - | - |
| *Alliaria petiolata* | Garlic Mustard | VLA | <1% | - | - | - | - | - | - |
| *Alopecurus pratensis* | Meadow Foxtail | F | 5% | - | - | - | - | - | - |
| *Anthriscus sylvestris* | Cow Parsley | F* | 5% | F | 5% | LF | 5% | F | 5% |
| *Arrhenatherum elatius* | False Oat-grass | F/LA* | 20% | - | - | LF | 5% | VLF | <1% |
| *Calystegia sepium* | Hedge Bindweed | - | - | O | 1% | - | - | - | - |
| *Cirsium arvense* | Creeping Thistle | O | <1% | F | 5% | - | - | F | 5% |
| *Cirsium vulgare* | Spear Thistle | O | <1% | - | - | - | - | - | - |
| *Dactylis glomerata* | Cock's-foot | LF | 2% | LF | 5% | - | - | - | - |
| *Digitalis purpurea* | Foxglove | - | - | - | - | O | <1% | O | <1% |
| *Epilobium hirsutum* | Great Willowherb | VLA | <1% | LA | 5% | - | - | - | - |
| *Festuca rubra* | Red Fescue | LF | 5% | - | - | - | - | - | - |
| *Filipendula ulmaria* | Meadowsweet | VLF | <1% | - | - | - | - | - | - |
| *Fumaria officinalis* | Common Fumitory | VLA | <1% | - | - | - | - | VLA | <1% |
| *Galium aparine* | Cleavers | F* | 5% | F | 5% | F* | 5% | F | 5% |
| *Geranium dissectum* | Cut-leaved Crane's-bill | - | - | - | - | - | - | R | <1% |
| *Geranium molle* | Dove's-foot Crane's-bill | VLF | <1% | - | - | - | - | - | - |
| *Glechoma hederacea* | Ground-ivy | VLA | <1% | - | - | - | - | - | - |
| *Hedera helix* | Ivy | LA/F | 10% | LA | 20% | A* | 25% | LA/F* | 20% |
| *Heracleum sphondylium* | Hogweed | - | - | F | 5% | - | - | - | - |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Holcus lanatus* | Yorkshire-fog | F | 5% | LA | 10% | LF | <1% | F | 5% |
| *Juncus effusus* | Soft-rush | - | - | - | - | - | - | VLF | <1% |
| *Lapsana communis* | Nipplewort | O | <1% | - | - | R | <1% | - | - |
| *Lotus corniculatus* | Common Bird's-foot-trefoil | VLA | <1% | - | - | - | - | - | - |
| *Potentilla anserina* | Silverweed | VLF | <1% | - | - | - | - | - | - |
| *Potentilla reptans* | Creeping Cinquefoil | VLF | <1% | - | - | - | - | - | - |
| *Ranunculus repens* | Creeping Buttercup | - | - | F | 2% | VLF | <1% | - | - |
| *Rubus fruticosus* agg. | Bramble | LF | 5% | F/LA | 10% | O | 5% | - | - |
| *Rumex conglomeratus* | Clustered Dock | - | - | O | 1% | - | - | - | - |
| *Rumex obtusifolius* | Broad-leaved Dock | - | - | O | <1% | O | <1% | O | <1% |
| *Rumex sanguineus* | Wood Dock | O | <1% | - | - | - | - | - | - |
| *Senecio jacobaea* | Common Ragwort | O | <1% | - | - | - | - | - | - |
| *Silene dioica* | Red Campion | - | - | - | - | - | - | VLA | <1% |
| *Solanum dulcamara* | Bittersweet | R | <1% | - | - | - | - | - | - |
| *Sonchus asper* | Prickly Sow-thistle | O | <1% | - | - | - | - | - | - |
| *Stachys sylvatica* | Hedge Woundwort | R | <1% | - | - | - | - | VLF | <1% |
| *Stellaria media* | Common Chickweed | - | - | - | - | - | - | VLF | <1% |
| *Torilis japonica* | Upright Hedge-parsley | - | - | - | - | O | <1% | VLF | <1% |
| *Urtica dioica* | Common Nettle | F* | 20% | F* | 20% | A* | 25% | LA/F* | 20% |
| *Veronica chamaedrys* | Germander Speedwell | VLA | <1% | - | - | - | - | - | - |

[1]Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species.
Species highlighted in grey are classed as either 'woody' or 'woodland' species contributing to *The Hedgerows Regulations 1997 w*ildlife and landscape criteria assessment.

**Table 8.6: Plant Species List for Hedgerows 5 to 8**

| | | Hedgerow 5 | | Hedgerow 6 | | Hedgerow 7 | | Hedgerow 8 | |
|---|---|---|---|---|---|---|---|---|---|
| **Scientific Name** | **Common Name** | **DAFOR** | **% cover** | **DAFOR** | **% cover** | **DAFOR** | **% cover** | **DAFOR** | **% cover** |
| *Acer pseudoplatanus* | Sycamore | VL | <1% | - | - | - | - | R | <1% |
| *Corylus avellana* | Hazel | - | - | LA | 5% | - | - | O | 1% |
| *Crataegus monogyna* | Hawthorn | A* | 50% | F/LA* | 20% | A* | 50% | A* | 30% |
| *Ilex aquifolium* | Holly | A* | 20% | A* | 20% | O | <1% | A* | 40% |
| *Prunus spinosa* | Blackthorn | A* | 10% | A* | 30% | A* | 40% | A* | 20% |
| *Rosa canina* | Dog-rose | O | <1% | - | - | O | <1% | LF | <1% |
| *Salix caprea* | Goat Willow | - | - | - | - | - | - | VLA | <1% |
| *Sambucus nigra* | Elder | O | 5% | LA | 5% | O | 5% | F | <1% |
| **Herb Species** | **Herb Species** | | | | | | | | |
| *Anthriscus sylvestris* | Cow Parsley | - | - | - | - | LF | 5% | VLF | <1% |
| *Arrhenatherum elatius* | False Oat-grass | LF | 5% | VLA | <1% | F* | 5% | F | 5% |
| *Calystegia sepium* | Hedge Bindweed | - | - | - | - | VLF | <1% | - | - |
| *Cirsium arvense* | Creeping Thistle | O | <1% | O | <1% | - | - | - | - |
| *Dactylis glomerata* | Cock's-foot | VLF | <1% | LF | 2% | - | - | LF | 2% |
| *Digitalis purpurea* | Foxglove | O | <1% | O | <1% | - | - | - | - |
| *Dryopteris filix-mas* | Male-fern | - | - | - | - | - | - | - | - |
| *Festuca rubra* | Red Fescue | - | - | - | - | - | - | VLF | <1% |
| *Fumaria officinalis* | Common Fumitory | VLA | <1% | VLA | <1% | VLF | <1% | VLF | <1% |
| *Galium aparine* | Cleavers | F* | 5% | F* | 5% | LA | 2% | VLA | <1% |
| *Geranium robertianum* | Herb-Robert | - | - | - | - | - | - | VLF | <1% |
| *Geum urbanum* | Wood Avens | - | - | - | - | VLF | <1% | - | - |
| *Glechoma hederacea* | Ground-ivy | VLF | <1% | - | - | - | - | - | - |
| *Hedera helix* | Ivy | A* | 20% | - | - | LA | 5% | A/LA | <1% |
| *Holcus lanatus* | Yorkshire-fog | F | 5% | LF | 5% | F* | 5% | F | 5% |
| *Juncus effusus* | Soft-rush | VLF | <1% | - | - | - | - | - | - |
| *Lonicera periclymenum* | Honeysuckle | - | - | VLA | 1% | - | - | - | - |
| *Polygonum aviculare* | Knotgrass | - | - | - | - | R | <1% | - | - |
| *Pteridium aquilinum* | Bracken | - | - | - | - | VLA | <1% | LF | 5% |
| *Ranunculus repens* | Creeping Buttercup | VLF | <1% | - | - | - | - | - | - |
| *Rubus fruticosus* agg. | Bramble | A* | 5% | LF | 5% | F* | 5% | F | 5% |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Rumex obtusifolius* | Broad-leaved Dock | O | <1% | - | - | - | - | - | - |
| *Solanum dulcamara* | Bittersweet | - | - | - | - | - | - | - | - |
| *Stachys sylvatica* | Hedge Woundwort | O | <1% | - | - | R | <1% | VLF | <1% |
| *Stellaria holostea* | Greater Stitchwort | - | - | VLF | <1% | - | - | O | <1% |
| *Stellaria media* | Common Chickweed | - | - | - | - | - | - | VLF | <1% |
| *Torilis japonica* | Upright Hedge-parsley | VLA | <1% | - | - | - | - | - | - |
| *Urtica dioica* | Common Nettle | A* | 20% | A* | 20% | A* | 10% | - | - |
| *Vicia cracca* | Tufted Vetch | R | <1% | - | - | - | - | - | - |

[1]Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species.
Species highlighted in grey are classed as either 'woody' or 'woodland' species contributing to *The Hedgerows Regulations 1997 w*ildlife and landscape criteria assessment.

**Table 8.7: Plant Species List for Hedgerows 9 to 11**

| | | Hedgerow 9 | | Hedgerow 10 | | Hedgerow 11 | |
|---|---|---|---|---|---|---|---|
| **Scientific Name** | **Common Name** | **DAFOR** | **% cover** | **DAFOR** | **% cover** | **DAFOR** | **% cover** |
| *Acer pseudoplatanus* | Sycamore | - | - | LF | 5% | - | - |
| *Corylus avellana* | Hazel | - | - | LA | 10% | R | <1% |
| *Crataegus monogyna* | Hawthorn | A* | 50% | A* | 60% | A* | 50% |
| *Fraxinus excelsior* | Ash | - | - | LA | 5% | LF | 2% |
| *Ilex aquifolium* | Holly | VLA | 5% | - | - | LF | 5% |
| *Prunus spinosa* | Blackthorn | A* | 20% | - | - | LA | 20% |
| *Quercus robur* | Pedunculate Oak | - | - | - | - | F | 10% |
| *Rosa canina* | Dog-rose | VLA | 5% | - | - | LF | 2% |
| *Sambucus nigra* | Elder | F | 20% | LA | 5% | F | 5% |
| **Herb Species** | **Herb Species** | | | | | | |
| *Anthriscus sylvestris* | Cow Parsley | - | - | VLA | 5% | LF | <1% |
| *Arrhenatherum elatius* | False Oat-grass | LF | 5% | LF | 5% | - | - |
| *Cerastium fontanum* | Common Mouse-ear | - | - | - | - | VLF | <1% |
| *Cirsium arvense* | Creeping Thistle | - | - | O | 1% | - | - |
| *Dactylis glomerata* | Cock's-foot | LVA | 20% | - | - | LF | 5% |
| *Digitalis purpurea* | Foxglove | O | <1% | - | - | VLF | <1% |
| *Dryopteris filix-mas* | Male-fern | O | <1% | - | - | - | - |
| *Epilobium hirsutum* | Great Willowherb | - | - | - | - | VLF | <1% |
| *Galium aparine* | Cleavers | VLF | <1% | VLA | 1% | F* | 5% |
| *Geranium robertianum* | Herb-Robert | - | - | VLF | 1% | - | - |
| *Geum urbanum* | Wood Avens | - | - | - | - | VLF | <1% |
| *Hedera helix* | Ivy | F/LA* | 20% | LA | 5% | - | - |
| *Juncus effusus* | Soft-rush | D | <1% | - | - | - | - |
| *Lapsana communis* | Nipplewort | - | - | R | 1% | - | - |
| *Matricaria discoidea* | Pineappleweed | - | - | R | <1% | - | - |
| *Plantago lanceolata* | Ribwort Plantain | - | - | VLF | <1% | - | - |
| *Ranunculus repens* | Creeping Buttercup | - | - | - | - | VLF | <1% |
| *Rubus fruticosus* agg. | Bramble | F | 5% | VLA | 5% | A* | 20% |
| *Rumex obtusifolius* | Broad-leaved Dock | O | <1% | O | 1% | - | - |
| *Solanum dulcamara* | Bittersweet | VLF | <1% | - | - | - | - |
| *Sonchus asper* | Prickly Sow-thistle | - | - | O | <1% | - | - |
| *Taraxacum officinale* agg. | Dandelion | - | - | O | <1% | - | - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Trifolium pratense* | Red Clover | - | - | VLF | <1% | - | - |
| *Urtica dioica* | Common Nettle | LVA | 5% | F* | 20% | A* | 20% |
| *Vicia sepium* | Bush Vetch | - | - | R | 1% | - | - |

**Table 8.8: Hedgerow Description and Assessment in Accordance with *The Hedgerows Regulations 1997: Hedgerows 1 to 3***

| | Hedgerow Name | Hedgerow 1 | | | Hedgerow 2 | | | Hedgerow 3 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Description | Height x width (metres) | 3x2 | | | 2-6x1.5 | | | 1.5x1 | | |
| | Length (metres) | 246 | | | 107 | | | 94 | | |
| | Continuity | 100 | | | 100 | | | 90 | | |
| | Management | Cut on top and sides | | | Grazed | | | Grazed | | |
| Woody Species | Section number[1] | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| | Qualifying woody species | 3 | 4 | - | 6 | 5 | - | 4 | - | - |
| | ***Average Number*** | ***4*** | | | ***6*** | | | ***4*** | | |
| Number of Features Present | (a) Bank or wall along at least ½ length | No | | | No | | | No | | |
| | (b) Gaps which in agg. do not exceed 10% | Yes | | | Yes | | | Yes | | |
| | (c)-(e) 1 standard tree per 50m | No | | | Yes | | | No | | |
| | (f) At least 3 woodland species within 1m | No | | | No | | | No | | |
| | (g) Ditch along at least ½ its length | No | | | Yes | | | No | | |
| | (h) Connections scoring 4 points or more | No | | | No | | | No | | |
| | (i) Parallel hedge within 15m | No | | | No | | | No | | |
| | ***Total Features*** | ***1*** | | | ***3*** | | | ***1*** | | |
| Hedgerow Importance | ***Criteria for Hedgerow Importance 1*** | ***No*** | | | ***No*** | | | ***No*** | | |
| | ***Criteria for Hedgerow Importance 2:*** | ***No*** | | | ***Yes*** | | | ***No*** | | |
| | ***Criteria for Hedgerow Importance 3***: | ***No*** | | | ***No*** | | | ***No*** | | |
| Hedgerow Important Criteria | ***Criteria for Hedgerow Importance 1:***<br>Hedgerow contains species listed as:<br>(1) Part 1 of Schedule 1, Schedule 5 or Schedule 8 of *Wildlife and Countryside Act 1981* (as amended);<br>(2) Declining breeders in 'Red Data Birds of Britain'; and / or<br>(3) Categorised as 'endangered', 'extinct' or 'vulnerable' | | | | | | | | | |
| | ***Criteria for Hedgerow Importance 2:***<br>Hedgerow includes:<br>(i) At least 7 woody species (on average);<br>(ii) At least 6 woody species (on average) and at least 3 features;<br>(iii) At least 6 woody species (on average), including one of: Black Poplar, Large-leaved Lime, Small-leaved Lime or Wild Service Tree; and / or;<br>(iv) At least 5 woody species (on average), and has 4 features | | | | | | | | | |
| | ***Criteria for Hedgerow Importance 3***:<br>Is adjacent to is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g). | | | | | | | | | |

[1]Up to and including 100 metres length = 1 section required.
100 to 200 metres length = 2 sections required
Greater than 200 metres length = 3 sections required.

**Table 8.9: Hedgerow Description and Assessment in Accordance with *The Hedgerows Regulations 1997: Hedgerows 4 to 6***

| | Hedgerow Name | Hedgerow 4 | | | Hedgerow 5 | | | Hedgerow 6 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Description | Height x width (metres) | 1.5x1.5 | | | 2x1.5 | | | 1.5-3x1 | | |
| | Length (metres) | 268 | | | 196 | | | 171 | | |
| | Continuity | 60 | | | 100 | | | 50 | | |
| | Management | Grazed and topped | | | Grazed | | | Cut and Grazed | | |
| Woody Species | Section number[1] | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| | Qualifying woody species | 5 | 5 | 6 | 3 | 4 | - | 1 | 5 | - |
| | ***Average Number*** | ***5*** | | | ***4*** | | | ***3*** | | |
| Number of Features Present | (a) Bank or wall along at least ½ length | No | | | No | | | No | | |
| | (b) Gaps which in agg. do not exceed 10% | No | | | Yes | | | No | | |
| | (c)-(e) 1 standard tree per 50m | No | | | No | | | No | | |
| | (f) At least 3 woodland species within 1m | No | | | No | | | No | | |
| | (g) Ditch along at least ½ its length | No | | | No | | | No | | |
| | (h) Connections scoring 4 points or more | No | | | No | | | No | | |
| | (i) Parallel hedge within 15m | No | | | No | | | No | | |
| | ***Total Features*** | ***0*** | | | ***1*** | | | ***0*** | | |
| Hedgerow Importance | ***Criteria for Hedgerow Importance 1*** | ***No*** | | | ***No*** | | | ***No*** | | |
| | ***Criteria for Hedgerow Importance 2:*** | ***No*** | | | ***No*** | | | ***No*** | | |
| | ***Criteria for Hedgerow Importance 3***: | ***No*** | | | ***No*** | | | ***No*** | | |
| Hedgerow Important Criteria | ***Criteria for Hedgerow Importance 1:***<br>Hedgerow contains species listed as:<br>(1) Part 1 of Schedule 1, Schedule 5 or Schedule 8 of *Wildlife and Countryside Act 1981* (as amended);<br>(2) Declining breeders in 'Red Data Birds of Britain'; and / or<br>(3) Categorised as 'endangered', 'extinct' or 'vulnerable' | | | | | | | | | |
| | ***Criteria for Hedgerow Importance 2:***<br>Hedgerow includes:<br>(i) At least 7 woody species (on average);<br>(ii) At least 6 woody species (on average) and at least 3 features;<br>(iii) At least 6 woody species (on average), including one of: Black Poplar, Large-leaved Lime, Small-leaved Lime or Wild Service Tree; and / or;<br>(iv) At least 5 woody species (on average), and has 4 features | | | | | | | | | |
| | ***Criteria for Hedgerow Importance 3***:<br>Is adjacent to is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g). | | | | | | | | | |

[1]Up to and including 100 metres length = 1 section required.
100 to 200 metres length = 2 sections required
Greater than 200 metres length = 3 sections required.

**Table 8.10: Hedgerow Description and Assessment in Accordance with *The Hedgerows Regulations 1997: Hedgerows 7 to 9***

| | Hedgerow Name | Hedgerow 7 | | | Hedgerow 8 | | | Hedgerow 9 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Description | Height x width (metres) | 4x1 | | | 4x2 | | | 2x1 | | |
| | Length (metres) | 110 | | | 176 | | | 100 | | |
| | Continuity | 100 | | | 100 | | | 100 | | |
| | Management | Cut and grazed | | | Cut and Grazed | | | Grazed | | |
| Woody Species | Section number[1] | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| | Qualifying woody species | 5 | 5 | - | 4 | 4 | - | 5 | - | - |
| | ***Average Number*** | ***5*** | | | ***4*** | | | ***5*** | | |
| Number of Features Present | (a) Bank or wall along at least ½ length | No | | | No | | | No | | |
| | (b) Gaps which in agg. do not exceed 10% | Yes | | | Yes | | | Yes | | |
| | (c)-(e) 1 standard tree per 50m | No | | | Yes | | | No | | |
| | (f) At least 3 woodland species within 1m | No | | | No | | | No | | |
| | (g) Ditch along at least ½ its length | No | | | No | | | Yes | | |
| | (h) Connections scoring 4 points or more | No | | | No | | | No | | |
| | (i) Parallel hedge within 15m | No | | | Yes | | | No | | |
| | ***Total Features*** | ***0*** | | | ***3*** | | | ***2*** | | |
| Hedgerow Importance | ***Criteria for Hedgerow Importance 1*** | ***No*** | | | ***No*** | | | ***No*** | | |
| | ***Criteria for Hedgerow Importance 2:*** | ***No*** | | | ***No*** | | | ***No*** | | |
| | ***Criteria for Hedgerow Importance 3***: | ***No*** | | | ***No*** | | | ***No*** | | |
| Hedgerow Important Criteria | ***Criteria for Hedgerow Importance 1:***<br>Hedgerow contains species listed as:<br>(1) Part 1 of Schedule 1, Schedule 5 or Schedule 8 of *Wildlife and Countryside Act 1981* (as amended);<br>(2) Declining breeders in 'Red Data Birds of Britain'; and / or<br>(3) Categorised as 'endangered', 'extinct' or 'vulnerable' | | | | | | | | | |
| | ***Criteria for Hedgerow Importance 2:***<br>Hedgerow includes (Number of woody species required reduced by one in Lancashire):<br>(i) At least 7 woody species (on average);<br>(ii) At least 6 woody species (on average) and at least 3 features;<br>(iii) At least 6 woody species (on average), including one of: Black Poplar, Large-leaved Lime, Small-leaved Lime or Wild Service Tree; and / or;<br>(iv) At least 5 woody species (on average), and has 4 features | | | | | | | | | |
| | ***Criteria for Hedgerow Importance 3***:<br>Is adjacent to is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g). | | | | | | | | | |

[1]Up to and including 100 metres length = 1 section required.
100 to 200 metres length = 2 sections required
Greater than 200 metres length = 3 sections required.

**Table 8.11: Hedgerow Description and Assessment in Accordance with *The Hedgerows Regulations 1997: Hedgerows 10 and 11***

| | Hedgerow Name | Hedgerow 10 | | | Hedgerow 11 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Description | Height x width (metres) | 3x1 | | | 8x2 | | | | | |
| | Length (metres) | 109 | | | 151 | | | | | |
| | Continuity | 100 | | | 100 | | | | | |
| | Management | Cut | | | Unmanaged | | | | | |
| Woody Species | Section number[1] | 1 | 2 | 3 | 1 | 2 | 3 | | | |
| | Qualifying woody species | 3 | 3 | - | 5 | 4 | - | | | |
| | ***Average Number*** | ***3*** | | | ***4*** | | | | | |
| Number of Features Present | (a) Bank or wall along at least ½ length | Yes | | | No | | | | | |
| | (b) Gaps which in agg. do not exceed 10% | Yes | | | No | | | | | |
| | (c)-(e) 1 standard tree per 50m | No | | | Yes | | | | | |
| | (f) At least 3 woodland species within 1m | No | | | No | | | | | |
| | (g) Ditch along at least ½ its length | No | | | No | | | | | |
| | (h) Connections scoring 4 points or more | No | | | No | | | | | |
| | (i) Parallel hedge within 15m | Yes | | | Yes | | | | | |
| | ***Total Features*** | ***3*** | | | ***2*** | | | | | |
| Hedgerow Importance | ***Criteria for Hedgerow Importance 1*** | ***No*** | | | ***No*** | | | | | |
| | ***Criteria for Hedgerow Importance 2:*** | ***No*** | | | ***No*** | | | | | |
| | ***Criteria for Hedgerow Importance 3***: | ***No*** | | | ***No*** | | | | | |
| Hedgerow Important Criteria | ***Criteria for Hedgerow Importance 1:***<br>Hedgerow contains species listed as:<br>(1) Part 1 of Schedule 1, Schedule 5 or Schedule 8 of *Wildlife and Countryside Act 1981* (as amended);<br>(2) Declining breeders in 'Red Data Birds of Britain'; and / or<br>(3) Categorised as 'endangered', 'extinct' or 'vulnerable' | | | | | | | | | |
| | ***Criteria for Hedgerow Importance 2:***<br>Hedgerow includes (Number of woody species required reduced by one in Lancashire):<br>(i) At least 7 woody species (on average);<br>(ii) At least 6 woody species (on average) and at least 3 features;<br>(iii) At least 6 woody species (on average), including one of: Black Poplar, Large-leaved Lime, Small-leaved Lime or Wild Service Tree; and / or;<br>(iv) At least 5 woody species (on average), and has 4 features | | | | | | | | | |
| | ***Criteria for Hedgerow Importance 3***:<br>Is adjacent to is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g). | | | | | | | | | |

[1]Up to and including 100 metres length = 1 section required.
100 to 200 metres length = 2 sections required
Greater than 200 metres length = 3 sections required.

**Table 8.12: Habitat Suitability Index Assessment for Ponds 1, 1b and 2**

| Criteria | Description | Pond 1 | *Score*[1] | Pond 1b | *Score*[1] | Pond 2 | *Score*[1] |
|---|---|---|---|---|---|---|---|
| **$SI_1$** | **Location** | Optimal | *1.0* | Optimal | *1.0* | Optimal | *1.0* |
| **$SI_2$** | **Pond area** | 200m$^2$ | *0.4* | 25m$^2$ | *0.05* | 200m$^2$ | *0.4* |
| **$SI_3$** | **Permanence** | Never dries | *0.9* | Sometimes dries | *0.5* | Sometimes dries | *0.5* |
| **$SI_4$** | **Water quality** | Good | *1.0* | Good | *1.0* | Moderate | *0.67* |
| **$SI_5$** | **Shade** | 25% | *1.0* | 10% | *1.0* | 100% | *0.2* |
| **$SI_6$** | **Waterfowl** | Minor impact | *0.67* | Absent | *1.0* | Minor impact | *0.67* |
| **$SI_7$** | **Fish** | Minor | *0.33* | Absent | *1.0* | Minor | *0.33* |
| **$SI_8$** | **Pond count**[2] | 5 | *0.75* | 5 | *0.75* | 5 | *0.75* |
| **$SI_9$** | **Terrestrial habitat** | Good | *1.0* | Good | *1.0* | Poor | *0.33* |
| **$SI_{10}$** | **Macrophyte cover** | 25% | *0.55* | 25% | *0.55* | 50% | *0.8* |
| | **Assessment Result:** | **Good** | ***0.71*** | **Average** | ***0.63*** | **Below Average** | ***0.51*** |

[1]Calculated by $(SI_1 \times SI_2 \times SI_3 \times SI_4 \times SI_5 \times SI_6 \times SI_7 \times SI_8 \text{ s } SI_9 \times SI_{10})^{1/10}$
[2]Ponds within an unobstructed one kilometre radius

**Figure 1: Aerial Photograph Showing Pond Locations and Site Boundaries**

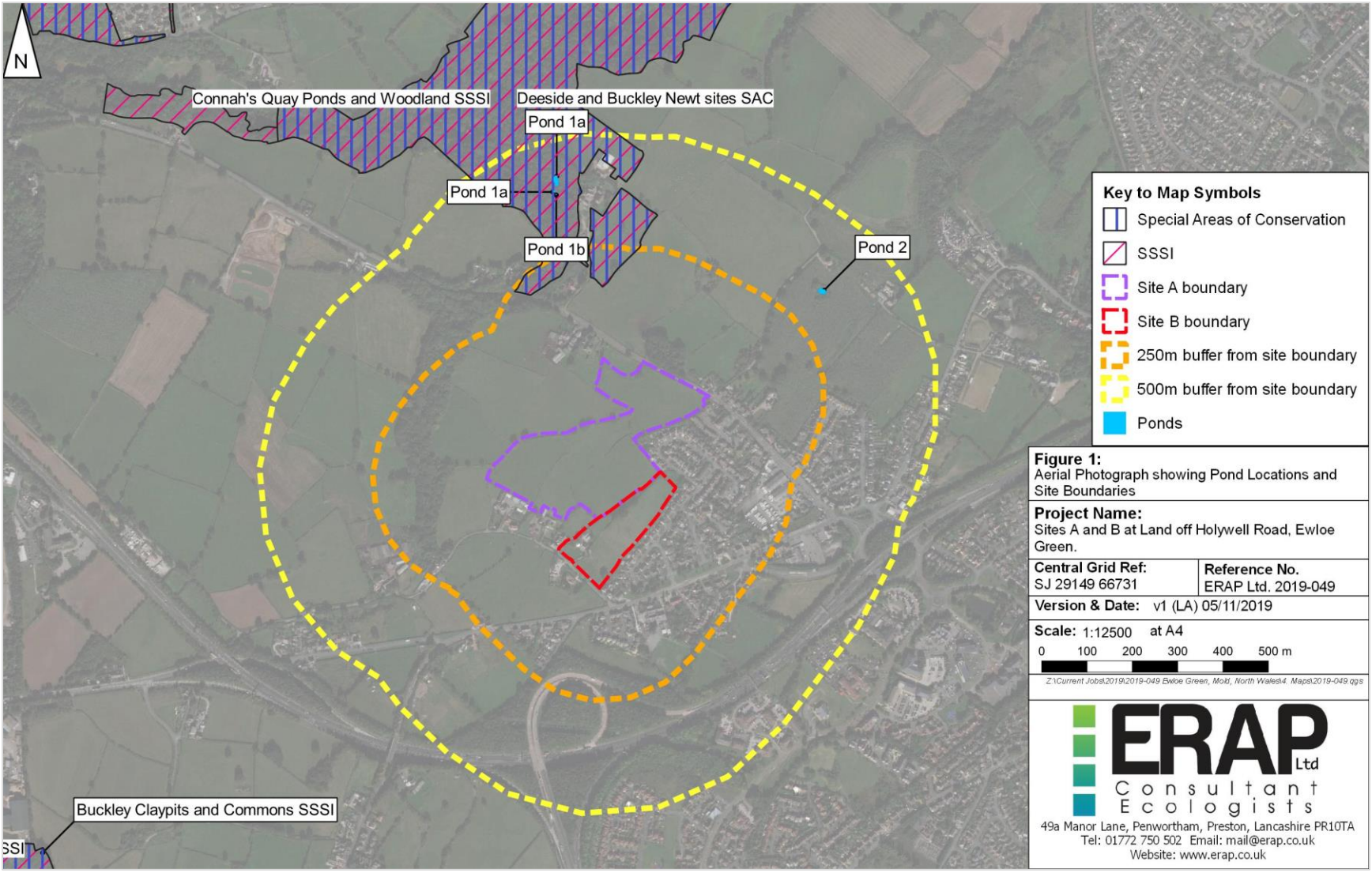

**Figure 2: Phase 1 Vegetation and Habitat Map**