

DUNKIRK FARM, ELLESMERE PORT

Preliminary Ecological Appraisal Report

February 2024



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EXECUTIVE SUMMARY

Site Address	Dunkirk Farm, Ellesmere Port, CH1 6PY.
Grid Reference	SJ 38009 73378
Approximate Site Area	Large Parcel: 21.21 ha Small Parcel: 1.47 ha Total area: 22.68 ha
Current Site Use	The site currently forms heavily grazed modified grassland fields bound by treelines and hedgerows.
Designated Sites within Zone of Influence	<p>The site falls within the Impact Risk Zone of Mersey Estuary Site of Special Scientific Interest (SSSI), Ramsar site, and Special Protection Area (SPA) located approximately 4.6 km northwest from the site and designated for an internationally important for wildfowl and consisted of large areas of intertidal sand and mudflats. According to Magic.gov.uk, a consultation between the Local Planning Authority (LPA) and Natural England is not required due to the nature of the development (residential). Furthermore, the site is not directly connected to the designated through any linear features such as watercourses and treelines that may facilitate pollution.</p> <p>Several other statutory and non-statutory designated sites are located within 5km from the site. All sites are sufficient distance from the proposed development and separated by anthropogenic barriers that no negative impact upon the sites is anticipated through development.</p>
Notable Habitat Features	Several priority habitats were identified on site which formed the ecological interest (TEP, 2021). Features included the watercourse which forms the southern and eastern boundary, hedgerows and mature trees which provide varied breeding, feeding, and roosting habitats. The hedgerows constitute S41 and local BAP habitats and should be retained however, they do not have legal protection due to being species-poor. Woodland lining the railway line should also be considered a S41 habitat.
Notable Species Applicable to the Assessment	<ul style="list-style-type: none"> • Bats (Potential roosting, foraging and commuting) • Breeding birds including ground nesting birds • Badgers • Water vole • Common amphibians and great crested newts • Hedgehog • Brown hare • Reptiles
Mitigation Recommendations	<ul style="list-style-type: none"> • The production of a Construction and Environmental Management Plan (CEMP). • Information packs for future residents including details of nearby designated sites. • Retention of any hedgerows, treelines, mature/veteran trees were possible. • Consideration for common amphibians and hedgehogs during habitat clearance. • Reasonable Avoidance Measures (RAMs) for reptiles to also protect brown hare. • Bird boxes targeting local species should be incorporated into the scheme to mitigate for the loss of suitable breeding bird habitat. • Retention of suitable nesting bird habitats where possible. • Lighting consideration for bats including maintaining existing dark corridors for commuting. • Precautionary Working Methods (PWMs) for badgers.
Recommended Further Surveys and	<ul style="list-style-type: none"> • Great Crested Newt Environmental DNA Surveys (15th

Assessment	<p>April – 30th June)</p> <ul style="list-style-type: none"> • Night-Time Bat Walkover Surveys (April – October) • Aerial Tree Inspection • Breeding Bird Surveys (March – July) • Water vole surveys (April – September)
Recommended Ecological Enhancements	<ul style="list-style-type: none"> • Planting of linear features such as hedgerows and trees between garden plots where possible, to add commuting features withing the site. • The inclusion of 'hedgehog highways' to facilitate movement across the site. This includes holes of 13 x 13cm at the bases of fence panels, leaving a sufficient gap beneath gates and/or leaving brick spaces at the bases of brick walls. • Enhancement of wet ditches surrounding the site.

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1 INTRODUCTION

1.1. SCOPE & PURPOSE

1.1.1. Collington Winter Environmental Ltd was commissioned by Redrow Homes to undertake a Preliminary Ecological Appraisal (PEA) at Dunkirk Farm, Ellesmere Port, CH1 6PY. This report has been prepared to inform a high-level indicative masterplan of the site to determine future development. The development will relate to a residential housing development.

1.1.2. The author of this report is Olivia Collington BSc (Hons), MIEEnvSc, CEnv Director at Collington Winter Environmental Ltd. Olivia is highly experienced managing schemes and has produced many ecological reports to inform planning management plans.

1.2. LOCATION

1.2.1. Please refer to Figure 1.1 for the site location. The site is in Dunkirk, an area in Chester, a city in northwest England.

Figure 1.1 Site Location



1.3. OBJECTIVES

1.3.1. The objectives of the Preliminary Ecological Appraisal are as follows:

- Identify the major habitats present
- Ascertain the presence or potential presence of any legally protected or notable species or habitats

- Identify any mitigation or further survey required and opportunities for strategic wildlife enhancements and long-term management.

2 METHODOLOGY

2.1. DESK STUDY

2.1.1. An initial desk-based assessment of the site was undertaken to collate baseline data. The desk study included:

- Review of previous ecological surveys completed at the site, as detailed within Dunkirk Farm – Cheshire West and Chester Local Plan Review - Extension Ecological And Arboricultural Appraisal produced in September 2021 by The Environment Partnership (TEP).
- Review of Magic.gov.uk website for details of any designated sites, notable habitats and presence of European Protected Species Licences.
- Review of aerial and OS maps for habitat information, as well as determining locations of potential waterbodies to be considered in the assessment.
- Review of potential habitat links on and off site, to determine the potential zone of influence of the proposed development.
- On site consultation with the landowner which provided valuable information regarding historic land use and known species and habitats present within the site.

2.1.2. Obtaining local records of notable species and locally designated sites within 1km of the site was ordered and was not available upon writing of this report. As such, a review of the data search obtained by TEP in 2021 was completed to assist in the assessment.

2.1.3. Please note, a lack of records for a species does not confirm absence. Instead, local surveys may not have been undertaken or records not submitted to the local data search.

2.2. VEGETATION AND HABITAT ASSESSMENT

2.2.1. An Ecological Appraisal of the site was undertaken by Emma Anderson, Ecologist at Collington Winter on 22nd February 2024. The weather was overcast (8/8 oktas), with light precipitation, wind speed 3 and 7°C.

2.2.2. The walkover survey was undertaken broadly in line with standard UK HAB Methodology (2023). The assessment is undertaken with consideration of methodology as per “Preliminary Ecological Appraisal” (CIEEM, 2018).

2.2.3. A UK HAB Plan has been produced and is presented in the Appendix of this report. Standard methodology has been used, though adjustments have been made based on judgement to demonstrate habitats in a clearer manner, or where standard guidance does not fit the conditions found on site.

2.3. FAUNA ASSESSMENT

2.3.1. A search for signs of protected and notable species of fauna was undertaken during the site walkover. This included both field signs of species, as well as potential for species to be present based on habitat availability.

2.3.2. The searches broadly included the following:

- Assessment of waterbodies on site and within 250m of the site boundary, and terrestrial habitats for suitability to support notable amphibians.
- Searches for field signs of, and habitat suitability for bats.
- Suitability of habitats to support reptiles, and searches for incidental field signs.
- Searches for field signs of badger (*Meles meles*), including setts, mammal paths, snuffle holes, badger hair and latrines to indicate activity.
- Searches of watercourses for signs of water vole (*Arvicola amphibius*), white-clawed crayfish (*Austropotamobius pallipes*) and otter (*Lutra lutra*), and assessment of habitat availability for the species.
- Assessment of the suitability of habitats to support notable birds and recording any field sightings of birds during the walkover.
- Assessment of the sites ability to support notable invertebrates and flora.
- Searches for non-native invasive species.

2.4. PRELIMINARY BAT ROOST ASSESSMENT AND BAT ACTIVITY ASSESSMENT

- 2.4.1. A Preliminary Bat Roost Assessment (PRA) of the site was undertaken by Emma Anderson and overseen by Olivia Collington who holds a Class 1 Bat Survey Licence from Natural England (Reference 2020–46960-CLS–CLS).
- 2.4.2. The survey was undertaken following guidance set out in Collins (2023). This includes undertaking a detailed internal and external inspection of any features to compile information on potential and actual bat entry/ exit points, roosting locations and evidence of bats.
- 2.4.3. Any buildings/structures were assessed as per categories listed in Table 4.1 (Collins, 2023).
- 2.4.4. The commuting and foraging assessment methodology is based on information contained within the Bat Conservation Trust guidelines 4th edition (Collins, 2023). The categorisation within this report is based on that set out in Table 4.1 (Collins, 2023), which is used as a basis for determining the requirement for further surveys and/or mitigation.

Table 4.1. Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement.

Potential suitability	Description	
	Roosting habitats in structures	Potential flight-paths and foraging habitats
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).
Negligible ^a	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions ^b and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity and not a classic cool/stable hibernation site, but could be used by individual hibernating bats ^c).	Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ^b and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for flight-paths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions ^b and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

2.5. SURVEY LIMITATIONS

- 2.5.1. This survey does not constitute a full botanical survey. Key species for each habitat type have been identified to give a broad representation of habitats present within the site.
- 2.5.2. It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation can ensure the complete characterisation of the natural environment. This survey does not constitute a full botanical survey. Plant species may have been under-recorded, unidentifiable or not visible due to a number of factors including the time of year the survey was carried out.

- 2.5.3. February is a suboptimal time for carrying out a Habitat Surveys due to being outside of the optimal plant growing season. Therefore, it is likely that some plants are present on the site but were not evident at the time of the survey and were not recorded. This is not considered to be a significant constraint due to the size and location of the site and limited extent of the habitats; it is considered very unlikely that any rare or priority plant species were missed.
- 2.5.4. Some areas of the site, particularly the fields to the north were waterlogged during the survey, making full survey of all areas difficult.
- 2.5.5. The protected species assessment provides a preliminary view of the likelihood of protected species occurring on the site. This is based on the suitability of the habitat, known distribution of the species in the local area (provided by data searches) and any direct evidence within the survey area.
- 2.5.6. The findings of this report represent the professional opinion of qualified ecologists and do not constitute professional legal advice. The client may wish to seek professional legal interpretation of the relevant wildlife legislation cited within this document.

2.6. PROPORTIONALITY

- 2.6.1. Collington Winter Environmental Ltd provide recommendations in line with the British Standard for Biodiversity (BS42020). Within BS42020, proportionality is encouraged for both ecologists and Local Authority Decision Makers and Consultees. Please refer to the below extract from Section 5.5 of BS42020.

“The work involved in preparing and implementing all ecological surveys, impact assessments and measures for avoidance, mitigation, compensation and enhancement should be proportionate to the predicted degree of risk to biodiversity and to the nature and scale of the proposed development. Consequently, the decision-maker should only request supporting information and conservation measures that are relevant, necessary and material to the application in question. Similarly, the decision-maker and their consultees should ensure that any comments and advice made over an application are also proportionate.”

NOTE 1 This approach is enshrined in Government planning guidance, for example, paragraph 193 of the National Planning Policy Framework for England [41].

NOTE 2 The desk studies and field surveys undertaken to provide a preliminary ecological appraisal (PEA) might in some cases be all that is necessary.”

3 SURVEY RESULTS

3.1. PREVIOUS SURVEYS

3.1.1. An Ecological and Arboricultural Appraisal was completed at the site in September 2021 by The Environment Partnership (TEP). The report includes:

- Desk-based assessment.
- Extended Phase 1 habitat survey, including preliminary ground-based inspection of trees for bat roost potential - target notes.
- Tree Survey to BS 5837:2012.

3.1.2. TEP also detail that the Backford Cross residential site immediately to the east of Dunkirk Farm has been subject to ecological surveys since 2013 which found:

- Grassland habitats, generally of low diversity, but with a robust hedge and ditch network. No water voles (*Arvicola amphibius*) found;
- Several ponds, but no confirmed GCN. Common toad found;
- Several trees of moderate and high bat roost potential;
- Signs of barn owl feeding but no actual nesting;
- No badgers

HABITATS SUMMARY (TEP, 2021)

3.1.3. The site measures c.21.5ha and comprises pasture grazed for beef cattle, separated by hedges, with dry ditches. There are about 50 individual mature hedgerow oak (*Quercus sp*) and various groups of pedunculate oak (*Quercus robur*) with occasional ash (*Fraxinus excelsior*) (e.g. Target Note 2). Dunkirk Farm and associated outbuildings are present east of Dunkirk Lane.

3.1.4. A wet flowing ditch with associated trees and hedgerow forms the southern and eastern boundaries (Target Notes 5 and 4 respectively). The western boundary is formed by the Birkenhead - Chester rail line which runs in deep wooded cutting. Dunkirk Farm complex includes one two-storey residence, several Dutch barns, and sheds and hardstanding and a slurry pit.

3.1.5. Several priority habitats were identified on site which formed the ecological interest. Features included the watercourse which forms the southern and eastern boundary, hedgerows and mature trees which provide varied breeding, feeding, and roosting habitats. The hedgerows constitute S41 and local BAP habitats and should be retained however, they do not have legal protection due to being species-poor. Woodland lining the railway line should also be considered a S41 habitat.

3.1.6. There is no ancient woodland on site. There are several mature oak trees with veteran characteristics, but none currently assessed as veterans. The Tree Survey indicates these as Grade A or Grade B trees. There are opportunities to manage the mature trees to create future veterans and associated deadwood habitats. This would be an enhancement.

WILDLIFE CORRIDORS AND ECOLOGICAL NETWORKS (TEP, 2021)

3.1.7. The primary corridor in the area is the off-site woodland which lines the Birkenhead. The main corridor on site is the un-named watercourse which, along with its dense hedges, forms the southern and eastern boundary (H11 and H5, respectively). This has been historically straightened and is heavily shaded by dense hedge vegetation. It experiences relatively poor water quality, perhaps due to emissions from highways sources upstream and run-off from farmland. There is a good opportunity to improve habitat quality through better management of the stream corridor, including creation of biodiverse habitats in a buffer zone within the site. A road crossing is required, this would fragment continuity, but measures can be taken to incorporate a wildlife shelf and create channel habitats that improve oxygenation up and downstream of the culvert entrance.

3.1.8. The other corridors within the site are:

- The northern boundary hedge (H3) with occasional trees, which connects the off-site wooded railway corridor on the west (W3) with the eastern
- boundary watercourse (H5);
- A central hedge line (H6 and H7) which has several mature oak trees. It also provides west-east connectivity;

3.1.9. The northern part of the site is shown on the CWAC Ecological network as a "restoration" area. Such restoration could be achieved by retaining and enhancing the internal corridors noted above to Chester rail line to the west.

FAUNA SUMMARY (TEP, 2021)

3.1.10. Table 3.1 summarises the fauna assessment of the Appraisal:

Table 3.1 Fauna Summary and Recommendations

Ecological Constraint	Assessment	Recommendations
Amphibians	There are no ponds on site. There is no great crested newt (<i>Triturus cristatus</i>) on site or within influencing distance (500m). There are no recent historic records of great crested newt. Full surveys, including eDNA analysis of the ponds at Backford Cross was carried out in 2016 with no findings of great crested newt. Common toads (<i>Bufo bufo</i>) are likely to be present in some of the Backford Cross ponds.	No further surveys were recommended.
Bats (Roosting)	<p>Many of the mature trees on site have moderate or high bat roost suitability.</p> <p>The mature trees, hedgerows and watercourse on site provide habitat suitable for bats to forage and commute. The off-site woodland blocks have mature trees that have features suitable to support roosting bats.</p> <p>Dunkirk Farmhouse was not subject to internal inspection. External inspection suggests it has Moderate suitability for bat roosting. Other barns and sheds on site have either Low or Negligible roost suitability.</p>	<p>A residential development such as is shown at Figure 5 can retain all the mature trees of bat roost potential and provide a green infrastructure which sustains bat foraging and commuting.</p> <p>Further surveys would be carried out at the time of a planning application to ascertain roost status. In the event a tree with a roost was found and its felling was unavoidable, there is no reason to believe a Natural England licence would not be granted. Removal of the farm buildings would be required. In a similar fashion, surveys at the time of planning application would ascertain if roosts were present. A Natural England licence would be obtained. The new development can incorporate bat boxes in retained trees and in new buildings</p>
Bats (activity)	The mature trees and hedgerows and ditches on site provide habitat suitable for bats to forage and commute.	Retain and enhance habitat features where possible, and creation of compensatory habitats, where habitat loss is required.
Farmland birds	<p>Kestrel (<i>Falco tinnunculus</i>) and buzzard (<i>Buteo buteo</i>) were noted hunting over the site and unmanaged land on Backford Cross to the east. No signs of barn owl (<i>Tyto alba</i>) were noted in any of the trees.</p> <p>It is likely that the hedges on site and the woodlands on the site margins will support breeding of a range of passerine species.</p> <p>For the bird assemblage as a whole, woodland and hedgerow habitats present</p>	There are opportunities to improve conditions for birds through works to bring the tree groups, the watercourse and hedges into management.

	the most suitable nesting habitat for species on site, with moderate densities of common woodland species.	
Badger (<i>Meles meles</i>)	No badgers recorded.	A badger survey in winter months is advised.
Other Species	There are general records of some species of conservation value e.g. brown hare (<i>Lepus europaeus</i>), hedgehog (<i>Erinaceus europaeus</i>) and various invertebrates.	Whilst these were not encountered on site, they may be present in low numbers and should be considered in construction-stage environmental management.
Otter (<i>Lutra lutra</i>) and water vole (<i>Amphibius arvicola</i>)	Field surveys of 2017 found no evidence of water voles in the watercourse bounding Backford Cross. Vole survey was not carried out in 2021.	In the event that a culvert is required to form an access over the A5117, or from Backford Cross, further surveys would be carried out and, if necessary, a water vole licence obtained to instal the culvert and displace voles humanely. Compensatory habitat provision can be made through enhancement of the watercourse corridor.

INVASIVE SPECIES (TEP, 2021)

3.1.11. No infestations of Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*), Rhododendron (*Rhododendron ferrugineum*) or other invasive non-native species were noted on the main body of the site. The farmyard and slurry pit area were not inspected.

3.2. SITE CONTEXT

3.2.1. The site is located to the west of Ellesmere Port, with a large area of residential housing separating the site from the town centre. The site comprises open agricultural land, which is typified in the local area to the west of Ellesmere Port by small grassland fields bound by treelines/ hedgerows creating a network of linear features which are anticipated to be of value for local wildlife.

3.2.2. A railway line is located to the adjacent west of the site which creates a distinctive north/ south linear feature through the local landscape and its treelines. This is anticipated to facilitate commuting for a range of wildlife.

3.3. DESIGNATED SITES

3.3.1. The following Sites of Special Scientific Interest (SSSI) are located within 5 km from the site boundary:

- Hallwood Farm Marl Pit SSSI is located approximately 4.1 km northwest. Hallwood Farm Marl Pit has been selected because it contains black poplar (*Populus nigra*) which is an uncommon and declining British native tree. This site contains one male and two female trees growing in close proximity which ensures an abundant supply of fertile seed. Since no hybrid trees grow nearby there is no chance of cross-fertilisation and genetic alteration of the true native species. The seeds are collected and are being used to propagate the species in other parts of the country.
- Mersey Estuary SSSI, Ramsar site, and Special Protection Area (SPA) is located approximately 4.6 km northwest from the site. This site is internationally important for wildfowl and consisted of large areas of intertidal sand and mudflats. The pools and the Hale Harsh are important roosting sites for wildfowl and waders at high tide. The site also supports many species throughout the winter. The birds feed on the rich invertebrate fauna and the plants and seeds located within the site. The site has also been found to be of value for migrating birds in the spring and Autumn. Areas of salt marshes present which provide roosting sites for birds such as glasswort (*Salicornia spp*). On the north side of the estuary, part of the coastline is formed by boulder clay cliffs. Portions of the cliff have become exposed by slumping, and in these areas several unusual species occur including yellow-wort (*Blackstonia perfoliate*) and bristly oxtongue (*Picris echioides*), both of which are at the northern limits of their distribution.

3.3.2. The development site falls within the Impact Risk Zone of the Mersey Estuary SSSI, Ramsar site, and SPA.

3.3.3. The following Local Nature Reserves (LNRs) are located within 5km from the site boundary:

- Stanney Wood LNR is located approximately 1.5 km northeast from the site and comprises an ancient woodland of mainly oak (*Quercus robur*) and silver birch (*Betula pendula*).
- Whitby Park LNR is located approximately 2.3 km northeast from the site. Habitats within the LNR include a fishing pond, amenity grassland, and woodland copse.
- Rivacre Valley LNR is located approximately 3.3 km north from the site. The valley sides are dominated with flora typical of woodland understorey include celandines (*Ficaria verna*) and bluebells (*Hyacinthoides non-scripta*). The site is also notable for birds and aquatic fauna.

3.3.4. No other statutory sites are located within 5 km of the site boundary.

3.4. PRIORITY HABITATS

3.4.1. Consultation with Magic.gov.uk highlighted the presence of the following Priority Habitats within 1km of the site boundary:

- Deciduous woodland is in various blocks within 1 km from the site with the closest located approximately 100 m north of the northern aspect.

3.5. HABITATS

3.5.1. Please refer to Drawing 20-1627 – 001 for the UK HAB Map for the site. Photographs of the site are presented in the Appendix.

MODIFIED GRASSLAND

3.5.2. The majority of the site comprised poor quality grazed modified grassland bound by hedgerows and treelines which was sparse and waterlogged at the time of survey.

3.5.3. The field to the southwest of the site, across Dunkirk Lane, was found to be in better condition, comprising tussocky grassland which included species such as; orchard grass (*Dactylis glomerata*), bitter dock (*Rumex obtusifolius*), curly dock (*Rumex crispus*), purple dead nettle (*lamium purpureum*), red clover (*Trifolium pratense*), creeping buttercup (*Ranunculus repens*), common dandelion (*Taraxacum officinale*), ragwort (*Senecio jacobaea*), common chickweed (*Stellaria media*) and cow parsley (*Anthriscus sylvestris*). The edges of the grassland comprised common nettle (*Urtica dioica*), willowherb (*Epilobium hirsutum*), broad leaved dock (*Rumex obtusifolius*), common cleavers (*Galium aparine*) and spear thistle (*Cirsium vulgare*).

3.5.4. A patch of soft rush (*Juncus effusus*) is located within the centre of the northwesternmost field.

MIXED SCRUB

3.5.5. Along the western boundary of the site along the railway line, a verge of mixed scrub was present which included blackthorn (*Prunus spinosa*), hawthorn (*Crataegus monogyna*), pendulate oak (*Quercus robur*), goat willow (*Salix caprea*), and elder (*Sambucus nigra*) with bramble (*Rubus fruticosus*) and scattered willowherb (*Epilobium hirsutum*), (G9 and G10). Fallen deadwood was also present.

3.5.6. The mixed scrub habitat extended along the northern boundary and along some of the hedgerows.

INDIVIDUAL RURAL TREES

3.5.7. Many mature trees were located throughout the site, several of which were fallen and provided value for fauna. T39, T37, T38, and T12 are located within the modified grassland fields and are not associated with a treeline or hedgerow. Please refer to the Appendix for the Arboriculture Tree Schedule and associated Tree Constraint Plan for the species composition of the individual trees.

NATIVE HEDGEROW

3.5.8. Native hedgerows were located throughout the site. Please refer to the Appendix for the Arboriculture Tree Schedule and associated Tree Constraint Plan for the species composition of the hedgerows.

NATIVE HEDGEROW ASSOCIATED WITH DITCH

3.5.9. Hedgerows (H2, H3, H4, H10, H11, H12, H15, H17) associated with ditches were located along the outer boundaries of the site as well as along internal field margins. The hedgerows were between 2 m – 3 m wide. Please refer to the Appendix for the Arboriculture Tree Schedule and associated Tree Constraint Plan for the species composition of the hedgerows.

NATIVE HEDGEROW WITH TREES

3.5.10. A native hedgerow with trees (H9 and H10) was located along the southern boundary. Please refer to the Appendix for the Arboriculture Tree Schedule and associated Tree Constraint Plan for the species composition of the hedgerows. The understorey comprises ivy (*Hedera helix*), broadleaved dock (*Rumex obtusifolius*), cleavers (*Galium aparine*), bramble (*Rubus fruticosus agg*), and common nettle (*Urtica dioica*). Groups of trees within this hedgerow include G6, and G5.

WET DITCHES

3.5.11. A network of wet ditches was located throughout the site particularly between field margins. The ditch within the centre of the northernmost fields widens within the centre with slow flowing water. The ditch in this area is dominated by watercress (*Rorippa nasturtium-aquaticum*) and pond water starwort (*Callitriche stagnalis*).

3.6. SPECIES

FLORA

3.6.1. The TEP report (2021) did not detail any records of notable flora.

3.6.2. The habitats on site comprised mainly agricultural land or heavily grazed modified grassland with little floristic diversity. Although a degree of grazing and trampling can promote the growth of notable flora, the site was heavily damaged and waterlogged, preventing new flora from colonising. Furthermore, only stress tolerant and more competitive species were identified within these habitats, making it less likely that less competitive, notable flora can grow.

3.6.3. Notable flora may thrive within boundary features such as the woodland separating the site from the railway along the western aspect, ditches, and treelines; however no notable specimens were identified. The survey was undertaken in February and therefore they may have been missed.

INVERTEBRATES

3.6.4. The data search returned general records of invertebrates in the local area as detailed by TEP (2021).

3.6.5. The habitats on site comprised mainly modified grassland providing limited floristic diversity, thus limiting the value for foraging invertebrates in the local area. Scrub was identified on site which will provide some value for sheltering invertebrates. A network of ditches within boundary features and within internal hedgerows may provide value for breeding invertebrates in their aquatic lifestyles.

3.6.6. Overall, notable invertebrates may be present on site albeit in low number and restricted to boundary features.

AMPHIBIANS

3.6.7. The data search returned no records of great crested newt, as detailed by TEP (2021).

3.6.8. The following EPSLs for great crested newt were located within 5km from the site boundary, based of Magic.gov.uk:

Case reference of granted application	Species on the licence*	Distance from site (KM)	Direction from the site	Licence Start Date	Licence End Date	Does the Licence				
						impact on a breeding site?	allow damage of breeding site?	allow damage of a resting place?	allow destruction of breeding site?	allow destruction of a resting place?
EPSM2011-3058	GCN	1.1	E	30/09/2013	01/07/2014	N			N	Y
EPSM2012-4778	GCN	1.3	NW	17/10/2012	30/04/2014	N			N	Y
EPSM2013-5713	GCN	1.4	NW	08/08/2013	31/10/2013	N			N	Y
2017-30434-EPS-MIT	GCN	1.4	NW	24/08/2017	30/06/2018	N	N	Y	N	Y
2017-30434-EPS-MIT-1	GCN	1.4	NW	25/07/2018	31/12/2019	N	N	Y	N	Y
EPSM2012-4731	GCN	1.6	NW	26/11/2013	30/06/2016	N			N	Y
2014-6412-EPS-MIT	GCN	1.7	NW	11/03/2015	30/11/2015	N	N	Y	N	Y
2014-6412-EPS-MIT-1	GCN	1.7	NW	24/06/2015	30/11/2015	N	N	Y	N	Y
2014-6493-EPS-MIT	GCN	1.7	NW	01/02/2015	31/07/2023	N	N	Y	N	Y
EPSM2010-1924	GCN	1.9	SE	11/06/2010	31/10/2010	N			N	Y
EPSM2012-4645	GCN	3	NE	22/10/2012	30/06/2016	N			N	Y
EPSM2010-1886	GCN	3.1	NE	16/07/2010	01/11/2010	N			N	Y
EPSM2012-4498	GCN	3.3	SW	05/10/2012	30/03/2014	N			N	Y
EPSM2010-2300	GCN	3.7	S	01/03/2011	31/07/2013	N			N	Y
2018-36992-EPS-MIT	GCN	4	SE	27/09/2018	31/07/2026	N	N	Y	N	Y
2018-37505-EPS-MIT	GCN	4	SE	01/11/2018	31/10/2019	N	N	N	N	N
2017-31443-EPS-MIT	GCN	4.1	NE	21/09/2017	31/12/2029	Y	Y	Y	Y	Y
2018-38045-EPS-MIT-1	GCN	4.2	NE	05/02/2019	31/07/2026	N	N	Y	N	Y
2019-38867-EPS-MIT	GCN	4.2	NE	05/02/2019	01/03/2020	N	N	N	N	N
2018-36504-EPS-MIT	GCN	4.3	SE	04/09/2018	30/07/2026	N	N	Y	N	Y
2018-36504-EPS-MIT-1	GCN	4.3	SE	16/01/2020	30/07/2026	N	N	Y	N	Y
2018-37151-EPS-MIT	GCN	4.3	SE	01/10/2018	30/09/2019	N	N	N	N	N
EPSM2011-3126	GCN	4.4	NW	13/10/2011	30/04/2012	N			N	Y
EPSM2013-5397	GCN	4.4	SE	07/06/2013	30/06/2022	N			N	Y
EPSM2013-5397-C-0-1	GCN	4.4	SE	22/01/2019	31/07/2022	N	N	Y	N	Y
EPSM2013-5397-C-0-2	GCN	4.4	SE	22/01/2019	31/07/2022	N	N	Y	N	Y
2016-27301-EPS-MIT	GCN	4.6	NE	03/02/2017	03/02/2017	Y	Y	Y	Y	Y
2019-41231-EPS-MIT	GCN	4.6	NE	20/08/2019	31/07/2025	Y	N	Y	Y	Y
2019-41231-EPS-MIT-1	GCN	4.6	NE	20/10/2019	31/07/2025	Y	N	Y	Y	Y

3.6.9. There are no ponds present on site; however, there are a total of 18 ponds within 250 m from the site (Figure 3.6.1) None of the ponds could be accessed as they are situated within private land. Boggy ground conditions meant that some of the ponds were physically inaccessible.

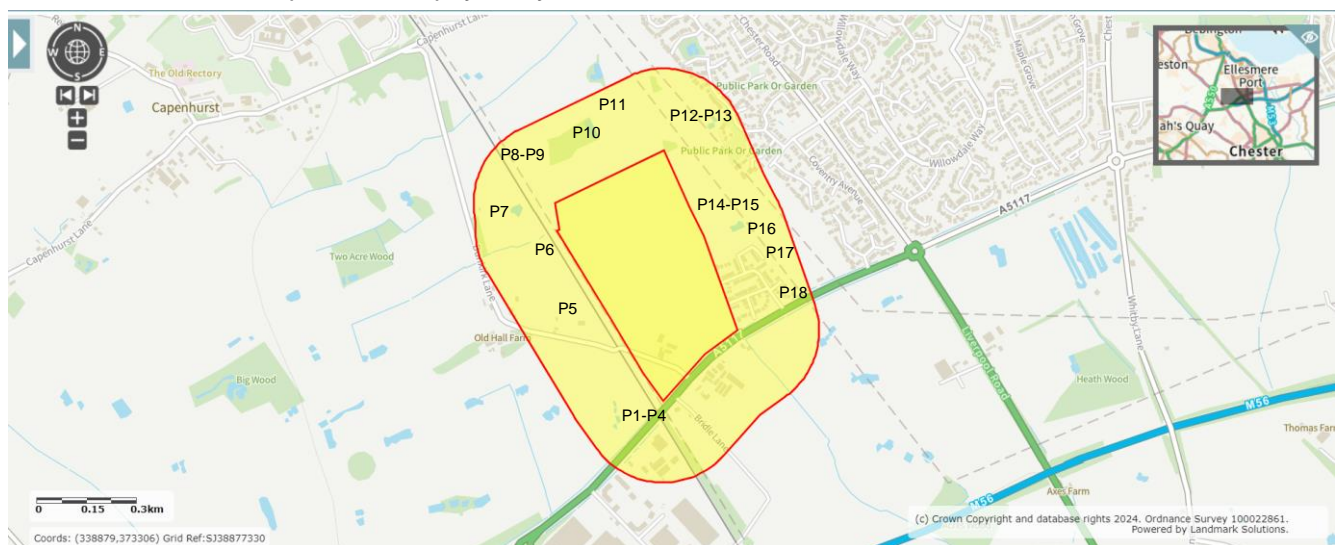


Figure 3.6.1 Ponds within 250 m from the site boundary.

3.6.10. A number of ponds are also located within 500 m from the site boundary which is the upper dispersal limit for great crested newts from breeding ponds. These form a network of waterbodies within the wider area, allowing the dispersal of great crested newts and common amphibians to/within the site and beyond.

- 3.6.11. The site provided some suitable sheltering and commuting habitats for amphibians in the local area in relation to the unmanaged hedgerows, scrub, hedgerows, and treelines. Large litter such as tyres were located within the site which are anticipated to provide refugia for amphibians. Furthermore, areas of standing water within the wet ditches may be used by breeding amphibians. Ornamental water bodies may also be located within nearby residential gardens which may provide suitable conditions for breeding common amphibians.
- 3.6.12. The managed modified grassland fields within the centre of the site are suboptimal for amphibian species due to a lack of shelter making them susceptible to predation. Furthermore, the surrounding treelines and hedgerows will provide vantage points for birds of prey.
- 3.6.13. It is possible that great crested newts and common amphibians are present on site terrestrially within hedgerows, scrub and treelines as well as in slow flowing ditches.

REPTILES

- 3.6.14. The TEP report (2021) did not detail any records of reptiles.
- 3.6.15. The site provides some value for commuting reptiles relating to the boundary hedgerows, treelines, and ditches. The hedgerows associated with ditches, in particular, would be of value for species such as grass snake (*Natrix Helvetica*) which favour riparian habitats, and known to be present in the local area. The site is well connected to the wider area via the adjacent railway line. Common species such as slow worm (*Anguis fragilis*) are tolerant to suboptimal habitats and anthropogenic disturbance, meaning that they may also be present on site.
- 3.6.16. As no records were returned in the data search, it is less likely that reptiles are present on site but cannot be discounted as populations are usually under recorded.

BIRDS

- 3.6.17. The TEP report (2021) did not detail any records of bird species.
- 3.6.18. The site provides value for a range of nesting passerine species by way of the native hedgerows, line of trees and scattered trees. The site is well connected to the wider area and species associated with agricultural landscapes are anticipated to be present.
- 3.6.19. The site provides some value for foraging birds of prey such as barn owl (*Tyto alba*), though no trees or buildings were present which provide suitable nesting features for the species.
- 3.6.20. Ground nesting birds could use the modified grassland habitats however boundary treelines and hedgerows provide suitable vantage points for birds of prey which is anticipated to deter ground nesters – particularly as the field parcels are relatively small.
- 3.6.21. As the site is prone to becoming inundated with water, particularly after heavy periods of rainfall, it may provide value for foraging wading birds. This is not significantly likely due to the field being heavily grazed; however, they are not to be completely discounted due to the proximity to Mersey Estuary SSSI, Ramsar site, and SPA is located approximately 4.6 km from the site.

BATS

- 3.6.22. There are numerous bat species records within the wider area, the closest of which is approximately 30m east of the site, associated with the now demolished Dunkirk House. Records relate to flight and foraging activity and include common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*) and Nathusius pipistrelles (*Pipistrellus nathusii*), brown long-eared bats (*Plecotus auritus*), noctule (*Nyctalus noctula*) and *Myotis* so as detailed by TEP (2021).
- 3.6.23. The following EPSL were located within 5km from the site boundary:

Case reference of granted application	Species on the licence*	Distance from site (KM)	Direction	Licence Start Date	Licence End Date	impact on a breeding site?	allow damage of breeding site?	allow damage of a resting place?	allow destruction of breeding site?	allow destruction of a resting place?
2019-40406-EPS-MIT	C-PIP S-PIP WHISK	0.76	NW	06/05/2019	30/06/2024	N	N	N	N	Y
2017-31355-EPS-MIT	BLE C-PIP S-PIP	1.4	NW	01/10/2017	01/12/2017	N	N	N	N	Y
2018-36075-EPS-MIT	BLE C-PIP S-PIP	1.4	NW	01/10/2018	31/12/2018	N	N	N	N	Y
2014-5590-EPS-MIT	BRAN BLE C-PIP WHISK	2.1	SE	17/02/2015	16/02/2025	Y	N	Y	Y	N
2014-5590-EPS-MIT-1	BRAN BLE C-PIP WHISK	2.1	SE	22/03/2016	16/02/2025	Y	Y	Y	Y	Y
EPSM2012-4287	C-PIP	2.4	SE	19/03/2012	31/08/2014	N			N	Y
EPSM2010-1725	C-PIP;BLE;NATT	2.8	SE	24/02/2010	30/09/2011	Y			Y	Y
2017-27753-EPS-MIT	BLE C-PIP	3.2	SE	01/03/2017	30/04/2022	Y	Y	Y	N	N
2019-44167-EPS-MIT	S-PIP	3.4	S	08/01/2020	31/01/2025	N	N	N	N	Y
2020-44369-EPS-MIT	BLE	4.2	SE	01/04/2020	13/02/2030	Y	N	N	Y	Y
2020-44369-EPS-MIT-1	BLE S-PIP	4.2	SE	01/03/2021	31/05/2031	Y	N	N	Y	Y
EPSM2009-1544	BLE	4.5	SE	04/01/2010	30/09/2011	N			N	Y
2015-13729-EPS-MIT	BLE C-PIP DAUB	4.6	NW	02/09/2015	25/08/2025	Y	N	Y	Y	Y
2015-13729-EPS-MIT-1	BLE C-PIP DAUB	4.6	NW	22/12/2015	25/08/2025	Y	N	Y	Y	Y
2017-31806-EPS-MIT-1	C-PIP NOCT S-PIP	4.7	SE	08/10/2018	30/08/2028	N	N	N	N	Y
2017-31806-EPS-MIT	S-PIP	4.7	SE	27/10/2017	30/08/2027	N	N	Y	N	Y
2017-31806-EPS-MIT-2	C-PIP NOCT S-PIP	4.7	SE	25/07/2019	19/07/2029	N	N	N	N	Y
EPSM2009-586	BLE	4.9	SE	30/04/2009	29/04/2011	N			N	Y
EPSM2011-3136	C-PIP	5	N	16/06/2011	30/09/2013	N			N	Y

Species on the licence*	Species name	Latin
C-PIP	Common pipistrelle	<i>Pipistrellus pipistrellus</i>
S-PIP	Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>
BLE	Brown long-eared bat	<i>Plecotus auritus</i>
DAUB	Daubenton's bat	<i>Myotis daubentonii</i>
NATT	Natterer's bat	<i>Myotis nattereri</i>
WHISK	Whiskered bat	<i>Myotis mystacinus</i>
BRAN	Brandt's bat	<i>Myotis brandtii</i>
NOCT	Noctule	<i>Nyctalus noctula</i>

3.6.24. The habitats on site provide some value for foraging and commuting bats, particularly hedgerows and treelines which area anticipated to act as suitable linear commuting features for bats. The railway along the western aspect to the site is also anticipated to be used in this way. These features are currently unlit and provide dark corridors for bat species. Invertebrate prey is thought to be present on site which will in turn benefit foraging bats. The site was assessed as having moderate value for foraging and commuting bats.

3.6.25. A total of six trees were found to provide bat roosting potential due to a number of potential roosting features (PRFs) identified including dense ivy cover, splits within the main stem and knot holes, and are shown on the UK Hab Map in the Appendix. Trees with bat roosting potential are listed on the Arboriculture Tree Schedule and associated Tree Constraint Plan as: T17, T18, T19, T39, T40, and T49

3.6.26. Dunkirk Farm buildings were not subject to a full Preliminary Bat Roost Assessment during the survey, however previous survey undertaken by TEP suggest the main farmhouse holds at least moderate bat roosting potential, with ancillary barns and sheds holding low value.

BADGER

3.6.27. The TEP report (2021) did not detail any records of badgers (*Meles meles*).

3.6.28. No signs of badger presence including obvious mammal holes, runs, fur, or latrines were recorded within the site or the (accessible) surrounding 30 m during the site visit. The habitats on site provide suitable sett building habitats and adjacent woodland is anticipated to be of high value for the species. The site is well connected to the local landscape, meaning that it is likely badgers will at least commute through the site.

WATER VOLE AND OTTER

- 3.6.29. The TEP report (2021) did not provide records of water vole (*Arvicola amphibius*) or otter (*Lutra lutra*).
- 3.6.30. The ditches on site underneath hedgerows provided negligible value for water vole and otter, being heavily shaded by bankside vegetation and lacking emergent vegetation. The shallow banksides are suboptimal for burrowing water vole and the water levels are anticipated to fluctuate greatly which water voles will avoid. The ditches are also associated with drainage making the water quality overall poor. However, it is anticipated that marginal and bankside vegetation is more prominent in the summer and may provide suitable foraging resources for water vole.
- 3.6.31. No field signs of either species were identified during the survey; however, the weather conditions were unsuitable having rained in the past 48 hours of the walkover. A ditch present along the northern boundary of the site connects to off-site ditches but not to any major rivers, streams, or known fishponds, limiting their value for commuting otter.
- 3.6.32. Overall, otter have been discounted from assessment. Water vole are unlikely to be present in onsite and surrounding ditches, however; they cannot be discounted without further survey.

WHITE-CLAWED CRAYFISH

- 3.6.33. No evidence of white-clawed crayfish (*Austropotamobius pallipes*) was noted during the field survey and no records of the species were located within 1 km of the site boundary (TEP, 2021).
- 3.6.34. Crayfish are principally found in clean, alkaline waters. Most known populations in Britain are associated with waterbodies in areas with chalk, limestone, or sandstone deposits where the calcium and pH levels are suitable (Conserving Natura 2000 Rivers). The waterbodies are utilised for predominantly for drainage, and this is anticipated to be of limited value for white clawed crayfish due to the levels of pollution that will occur in the water due to the surrounding roads and commercial units.
- 3.6.35. Overall, white-clawed crayfish are anticipated to be absent from the aquatic habitats. They were deemed unsuitable to support populations and there were no records obtained from the data search.

OTHER TERRESTRIAL MAMMALS

- 3.6.36. General records of European hedgehog (*Erinaceus europaeus*) and brown hare (*Lepus europaeus*) were located within 1km from the site (TEP, 2021).
- 3.6.37. Given the habitats present within the site including hedgerows and treelines, it is anticipated that hedgehog could be present within the site.
- 3.6.38. The site is surrounded by expanses of agricultural fields which are the preferred habitat for brown hare. The grassland on site is mostly grazed to a short sward and is therefore unsuitable for form creation. The smaller grassland parcel is more tussocky and may support breeding brown hare.

NON-NATIVE INVASIVE SPECIES

- 3.6.39. The TEP report did not detail records of non-native invasive species (2021).
- 3.6.40. No non-native invasive species were observed during the survey. However, February is a sub-optimal period for identification, and it is possible specimens may have been missed, particularly along the watercourses.

SPECIES DISCOUNTED FROM ASSESSMENT

- 3.6.41. Hazel Dormouse (*Muscardinus avellanarius*) mainly occur in southern counties, especially in Devon, Somerset, Sussex, and Kent. There are few recorded localities north of the Midlands, though they are present in parts of the Lake District and in scattered Welsh localities (Matthews et al, 2018). The species are not generally known to be present within the Chester area (Wembridge et al., 2016). The habitats on site are of limited value due to limited

areas of extensive ancient woodland and hazel scrub. As such, the species are reasonably discounted from site.

- 3.6.42. Red squirrel (*Sciurus vulgaris*) has been discounted from the assessment. Red squirrel populations are limited to small areas of northern England and are not known to be present in the Chester area; with no previous records returned in the data search. It is anticipated that high abundances of grey squirrel are present within this region (Shuttleworth/RSST n.d.). This species will displace red squirrel through competition as well as cause increased red squirrel mortality through the spread of squirrel pox (The Mammal Society, 2020).

4 MITIGATION RECOMMENDATIONS

4.1. DESIGNATED SITES

- 4.1.1. The site falls within the Impact Risk Zone of the Mersey Estuary SSSI, Ramsar site, and SPA. According to Magic.gov.uk, a consultation between the Local Planning Authority (LPA) and Natural England is **not** required due to the nature of the development (residential). Furthermore, the site is not directly connected to the designated site through any linear features such as watercourses and treelines that may facilitate pollution.
- 4.1.2. There may be a small increase in the number of visitors based on the residential nature of the development which will lead to recreational disturbances. It is recommended that public open space is to be provided on site which will reduce the necessity for the public to travel to the designated sites. Information packs should be distributed to each household on the importance of the designates sites, current threats and measures to protect it.
- 4.1.3. The development may have negative impacts during the construction phase on the nearby habitats. It is recommended that a detailed Construction and Environment Management Plan (CEMP) specific to the proposed development is created (and adhered to throughout the course of construction works) to avoid, minimise and mitigate for negative impacts resulting from construction practices on all habitats surrounding the site.
- 4.1.4. This plan will detail measures to avoid, minimise or mitigate any potential negative effects caused by construction practices on the environment on and surrounding the site including:
- The control of run-off from areas of arisings to prevent any pollutants/contaminants entering nearby waterbodies.
 - Appropriate measures to suppress dust during hot, dry and/or windy conditions.
 - Excavations should be sealed overnight or should have at least one shallow-sloping side to allow any animals that may fall in to escape.
 - An ecologist should be contacted for advice should any protected species be discovered during construction.

4.2. ECOLOGICAL NETWORKS

- 4.2.1. The site is not included in the National Habitat Network map, nor is it shown as a Network Enhancement or Network Expansion Zone. The site is also not specifically identified in the Cheshire West and Chester Ecological Network (Local Plan policy DM44), although the northern part is shown as part of the "restoration" priority.
- 4.2.2. This means there is a general guidance to look for opportunities through land management and development, to improve structural connectivity, resilience and function of the network. This could be achieved through habitat enhancements to hedgerows, treelines, and watercourses.

4.3. HABITATS

- 4.3.1. Several priority habitats were identified on site which formed the ecological interest (TEP, 2021). Features included the watercourse which forms the southern and eastern boundary, hedgerows and mature trees which provide varied breeding, feeding, and roosting habitats. The hedgerows constitute S41 and local BAP habitats and should be retained however, they do not have legal protection due to being species-poor. Woodland lining the railway line should also be considered an S41 habitat.
- 4.3.2. It is recommended that these habitats are retained where feasibly possible. Where loss of habitats is required, it is recommended that the ecologist and appointed landscape architects are consulted to discuss the required habitat creation to compensate for habitat loss.
- 4.3.3. It is recommended that any mature trees and those with veteran features are retained as they are considered irreplaceable habitats. There are opportunities to manage retained mature trees to create future veterans and associated deadwood habitats. This would be an enhancement.

HEDGEROWS AND TREES

- 4.3.4. The linear features comprising hedgerows and treelines should be retained within the scheme where possible to retain linear commuting routes for wildlife. Enhancements to these habitats would include supplementary native

planting to create species rich hedgerows.

4.3.5. There is no ancient woodland on site. There are several mature oak trees with veteran characteristics. The Tree Survey indicates these as Grade A or Grade B trees. There are opportunities to manage the mature trees to create future veterans and associated deadwood habitats. This would be an enhancement.

DITCHES

4.3.6. There is a good opportunity to improve habitat quality through better management of the stream corridor, including creation of biodiverse habitats in a buffer zone within the site. If a road crossing is required, this would fragment continuity, but measures can be taken to incorporate a wildlife shelf and create channel habitats that improve oxygenation up and downstream of the culvert entrance (TEP, 2021).

4.4. SPECIES

AMPHIBIANS

4.4.1. Great crested newts are known to be present in the local area, and the waterbodies surrounding the site could have value for the species in their aquatic phase. Further survey is required to determine presence/ absence of the species (See Section 5).

4.4.2. Within any masterplan, it is recommended that any watercourses are retained and enhanced. If great crested newts are found to be present, a Mitigation Strategy will be required to detail mitigation for the species.

4.4.3. Mitigation can form two options:

- On site mitigation through retention of waterbodies, and creation of a GCN Habitat Area to be protected throughout works. A Natural England European Protected Species Licence would be required.
- Enrol the scheme on the Natural England District Level Licencing Scheme. Once enrolled, there is no requirement to perform any on site mitigation for the species.

4.4.4. It is recommended that consideration of amphibian presence during habitat clearance is considered. Any debris is to be cleared by hand, and any common amphibians located moved carefully, by hand, to outside of the impacted area.

REPTILES

4.4.5. The site presented opportunities for sheltering reptiles associated with the hedgerows and treelines.

4.4.6. Any vegetation should be cleared under Reasonable Avoidance Measures (RAMs). The RAMs are as follows:

- An experienced Ecological Clerk of Works (ECoW) shall be appointed to ensure RAM's are enforced.
- A copy of this method statement must be kept on site (we suggest having a laminated copy in the site office/ compound);
- A walkover of the area should be undertaken by the ECoW to determine any change in status of the habitats/structures on site prior to the initiation of any works.
- A toolbox talk by the appointed ECoW will be given to the site manager and all contractors working on site with respect to the surrounding habitats and potential for protected/notable species. A copy of species factsheets relating to reptiles and breeding birds will be provided for display within the site office.
- Suitable vegetation is to be strimmed under ECoW to approximately 15cm in a northern to southern direction. It is to be checked by the ECoW following strimming to identify individuals. If discovered, they will be removed from the working area and covered. Once the areas are deemed reptile free, they are to be strimmed to ground level and maintained at this length for the remaining works.
- Any excavations will be backfilled on the same day as excavation or checked by the ECoW immediately prior to backfilling. This also considers avoiding temporary water bodies which may be attractive to amphibians. If it is not possible to backfill on the same day, a ramp, will be provided in all excavations or alternatively, all excavations should be well-covered with plywood.
- No piles of loose construction materials are to be created during works – all material will be kept on

hardstanding, stored on pallets, removed immediately from the site or checked by an ECoW prior to being removed.

- In the event reptiles are discovered, works will halt immediately and the ECoW will be contacted for advice. Contractors are not to handle reptiles unless informed to do so by the ECoW.

4.4.1. The precautionary destructive search work will be undertaken during the summer at a time of year when reptiles are active. The ecologist will be present during the strimming works. Any reptiles found during the destructive search will be relocated to the retained grassland to the south of the site.

4.4.2. During the construction period, the development zone will be maintained clear of vegetation in order to remove the likelihood of any reptiles re-colonising the site.

BREEDING BIRDS

4.4.7. The site provides some value for nesting birds anticipated to utilise the hedgerows and treelines as well as ground nesters.

4.4.8. Any vegetation management should be undertaken outside of the breeding bird season (March to September, inclusive). If this is not possible, a suitably qualified ecologist should undertake a nesting bird check no more than 48 hours prior to removal. If nesting activity is observed, the nest(s) should be left in situ until the young have fledged. A suitable buffer will be maintained and determined by the ecologist.

4.4.9. It is recommended that further breeding bird surveys be undertaken to determine the sites value for ground nesting birds (See Section 5).

4.4.10. The masterplan should seek to retain suitable breeding bird habitat through the retention of the hedgerows and treelines. It is recommended that bird boxes targeting local species in incorporated into the proposed development to allow for the continuity of nesting opportunities. Provision of new residential gardens and associated soft landscaping is anticipated to enhance the site for passerine species.

BATS

4.4.11. The trees on site should undergo reasonable avoidance measures. This would involve being inspected by a licensed bat worker with an endoscope before felling. If any evidence of bats is identified by the ecologist, further mitigation will be required. The nature of this mitigation depends on the findings of the ecologist.

4.4.12. It is recommended that the masterplan seeks to retain the hedgerows and treelines, thereby retaining the linear commuting features on the site. If this is not possible, bat activity surveys will be required to determine key commuting and foraging routes for bats and determine appropriate mitigation (See Section 5).

4.4.13. Slow-flying species such as brown long-eared bat, which are known to be in the local area, are sensitive to lighting and may be impacted by the proposed development, should no mitigation for lighting be considered.

4.4.14. Any proposed lighting/existing lighting should follow the guidance outlined in the Institute for Lighting Engineers document "Guidance for the Reduction of Obtrusive Lighting" (2005) and BCT's "Bats and Artificial Lighting at Night" (2023).

4.4.15. An External Lighting Scheme had not been produced on the writing of this report. As such, the following recommendations are to be considered within the scheme during its condition, to minimise impacts of lighting. The recommendations are as follows:

- Keep site lighting to minimum levels.
- Luminaries should lack UV elements and preferably LED lighting with a warm white light should be used over cool white light (ideally <2700Kelvin).
- Lighting should feature peak wavelengths greater than 550nm.
- Light placement should be downward facing to prevent excess horizontal or vertical light spill.
- The use of integrated fittings such as cowls, shields, louvres and hoods, that effectively contain light spill from unintended areas.

- The use of hard landscaping features to block light and create dark corridors.
- Avoid illuminating habitats of value.
- Use of timed security lights should be set on motion-sensors and using short, 1-minute timers, to minimise light use.
- Column heights of lighting can be considered to minimise light spill.

4.4.16. Lighting should not be directed towards linear commuting features such as treelines and hedgerows as well as the railway along the western aspect of the site to maintain dark corridors for commuting bats. No lighting should be directed towards trees with PRFs to avoid potential roosting bats from becoming entombed within the roost.

BADGER

4.4.17. No badger setts were identified during the survey; however, they may be within the local area. The following Precautionary Working Methods will be adhered to during the construction phase to ensure that no badgers are impacted by the proposed development (Badger Trust, 2023):

- A pre-commencement of work badger survey should be conducted by a suitably qualified ecologist to ensure the current badger situation is known and that the recommendations are correct.
- All site personnel should be fully briefed concerning the method statement, the presence of badgers, the mitigation measures to be followed, the relevant legislation, the penalties imposed and who to contact should they need to.
- Trees and shrubs should be felled so that they fall away from the direction of a sett and outside exclusion zones.
- Ensure excavations or trenches left overnight are covered or have an escape route such as a shallow gradient at one or both ends.
- Ensure excavations or trenches are inspected each morning and evening to ensure no badgers have become trapped.
- Open pipework with a diameter of more than 120mm should be properly covered or capped at the end of the working day to prevent badgers from entering and becoming trapped.
- During the work, the storage of any chemicals should be contained in such a way that they cannot be accessed or knocked over by any roaming badgers.
- The storage of topsoil or other “soft” building materials within the site should be given careful consideration. Badgers will readily adopt such mounds and dig setts which would then be afforded the same protection as established setts. To avoid the adoption of such mounds, they should be subject to daily inspections before work commences or alternative measures put in place, such as being fenced off for higher-risk areas.
- Litter, tools and potentially dangerous materials on site should be cleared at the end of the working day. Care should be taken that there are no sharp metal objects or pointed protrusions on the ground which could seriously injure a badger due to their poor eyesight.
- Ensure no dogs are brought to the work site.
- Security lighting should be kept to a minimum and away from setts to avoid disturbance to any badgers on site.
- Fires should be lit only in secure compounds away from areas of badger activity and should be fully extinguished at the end of the working day.
- Badger paths must not be blocked to ensure access to foraging areas is maintained.

4.4.18. Adherence to these measures should be confirmed to planners at regular intervals by the project ecologist.

TERRESTRIAL MAMMALS

4.4.19. European Hedgehog (*Erinaceous europaeus*) are anticipated to be present within the site and are a Species of Principal Importance. During habitat removal, any areas of dense vegetation should first be carefully hand searched to check for the species. If identified during management, should be relocated carefully by hand to a location away from the working area. If any injured individuals are located, they should be taken to a local vet.

4.4.20. The RAMS outlined for reptiles will protect breeding brown hare (*Lepus europaeus*). Brown hare is generally an agile species and will naturally disperse when disturbed (non-breeding). If any injured individuals are located, they should be taken to a local vet.

WATER VOLE

4.4.21. Due to the suitable habitats within the site, it is recommended that further surveys are completed to confirm presence

or absence of the species (see Section 5).

NON-NATIVE INVASIVE SPECIES

- 4.4.22. No non-native invasive species were identified during the survey. However multiple records were recorded within the area, and it is possible specimens may have not been recorded during the survey. If any flora species listed on Schedule 9 of the Wildlife & Countryside Act are identified on site, they should be appropriately eradicated by a specialist contractor under a Non-Native Invasive Species Method Statement.

5 FURTHER SURVEYS AND CONCLUSION

5.1. FURTHER SURVEYS

GREAT CRESTED NEWT ENVIRONMENTAL DNA

5.1.1. A total of 18 ponds are present within the site and within 250 m of the site which could provide suitable aquatic habitats for breeding great crested newt. It is recommended that eDNA surveys be undertaken on the waterbodies between 15th April – 30th June. The results will either confirm presence or absence and inform mitigation.

NIGHT-TIME BAT WALKOVER SURVEYS

5.1.2. Night-time Bat Walkover Surveys (NBW) should be completed, following guidance set out in Collins 2023. The site was assessed as having moderate suitability habitat for bats, where one survey per season is required between April to October (spring – April/May, summer – June to August, and autumn – September/October). With the inclusion static bat detector data, for 5 days, per month in appropriate weather conditions.

AERIAL TREE INSPECTION

5.1.3. All trees with bat roosting potential require further inspections. This would involve being inspected by a licensed bat worker with an endoscope. If any evidence of bats is found, further surveys would be required to inform any further mitigation. If a bat roost is present, a Natural England mitigation licence must be obtained before any works commence.

BREEDING BIRDS SURVEYS

5.1.4. The surveys will be based on guidance set out on Bird Survey Guidelines (2021).

5.1.5. Survey visits will be undertaken on dry days with no more than moderate wind. Survey during dawn mist is acceptable but survey during dense fog will be avoided. Site visits would commence no later than one hour after sunrise. In order to avoid confusion and reduce survey bias in areas with high densities of birds the survey would be commenced towards the end of this window. In addition, the starting position would be varied between visits in order to reduce survey bias. In all cases survey would ideally be completed by 11am (12 noon at the latest).

5.1.6. All areas will be approached within 50 m unless this is not practicable. In large expanses of open grassland or arable fields the boundaries will be walked and all birds within the field recorded. In other habitat where access and views allow, efforts will be made to record all bird activity within 50m of the survey route. Where no access is available, Public Rights of Way (PRoW) and local roads (where it is deemed safe to do so) will be utilised.

5.1.7. In all cases all birds seen or heard will be identified and recorded on a suitable scale map of the site to allow the information to be clearly recorded using standard British Trust for Ornithology (BTO) species and activity codes.

WATER VOLE SURVEYS

5.1.8. Water vole surveys have been recommended to determine the value of the shallow ponds on site. A detailed water vole survey of the ponds is to be undertaken between April – September to determine presence/ absence of water vole within the site. The survey should follow the methods set out in the Water Vole Mitigation Guidance (Dean et al., 2016).

5.2. OTHER MITIGATION MEASURES

5.2.1. Mitigation measures have been outlined to proceed with the proposed development and include:

- The production of a CEMP.
- Information packs for future residents including details of nearby designated sites.
- Retention of any hedgerows, treelines, mature/veteran trees where possible.
- Consideration for common amphibians and hedgehogs during habitat clearance.
- RAMs for reptiles.
- Bird boxes targeting local species should be incorporated into the scheme to mitigate for the loss of suitable

breeding bird habitat.

- Retention of suitable nesting bird habitats where possible.
- Lighting consideration for bats including maintaining existing dark corridors for commuting.
- PWMs for badgers.

5.3. CONCLUSION

5.4.1. The site was found to comprise modified grassland fields bound by hedgerows and treelines associated with ditches with individual rural trees and a block of soft rush. The site was found to have value or potential value for a range of fauna including common amphibians, great crested newts, reptiles, breeding birds, bats (foraging, commuting and roosting), badger, hedgehogs, and water vole. There is also the potential for non-native invasive flora to become present on site. Further surveys are recommended and include eDNA for great crested newt, night-time bat walkover surveys, aerial tree inspections, breeding bird surveys and water vole surveys. Other mitigation measures relate to the potential presence of common amphibians, bats, birds, and badgers.

5.4.2. Specific enhancement recommendations for the site include the following:



- Planting of linear features such as hedgerows and trees between garden plots where possible, to add commuting features within the site.
- The inclusion of 'hedgehog highways' to facilitate movement across the site. This includes holes of 13 x 13cm at the bases of fence panels, leaving a sufficient gap beneath gates and/or leaving brick spaces at the bases of brick walls.
- Enhancement of wet ditches surrounding the site.






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Description	Photographs
Modified grassland fields.	
Hedgerows within the site.	
Wet ditches throughout the site.	

	
<p>Scrub within the site</p>	
<p>Fallen deadwood.</p>	  

Features on trees with bat roosting potential.



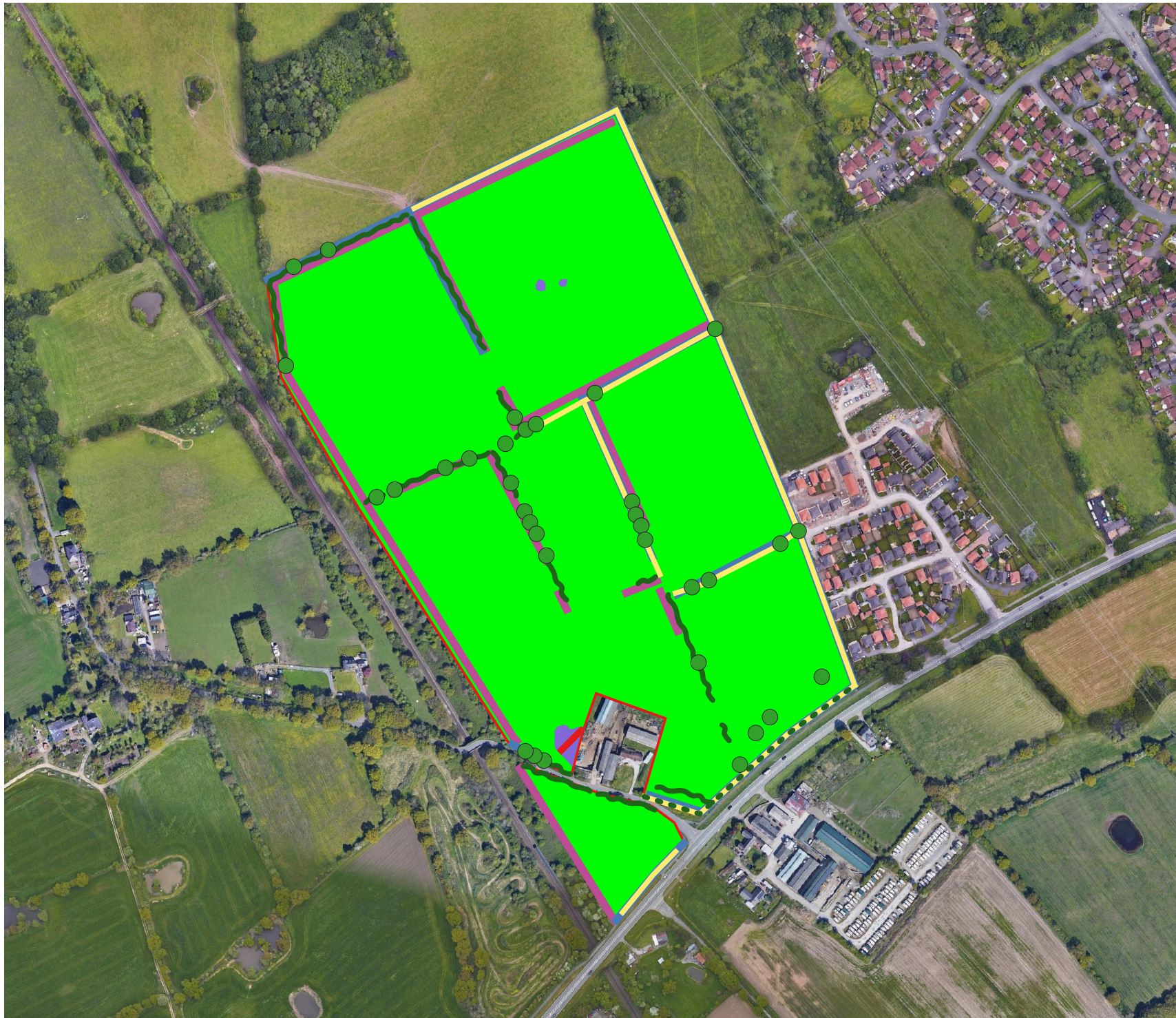
Litter and logs which may be used as refugia by reptiles and amphibians.





Dunkirk Farm - UKHab
Date: 29.02.2024

-  Bramble Scrub
-  Individual Rural Trees
-  Native Hedgerows
-  Native Hedgerow with Trees
-  Native Hederow Associated with Ditch
-  Wet Ditches
-  Mixed Scrub
-  Modified Grassland
-  Red Line Boundary



Scale: 1:5000

Drawn By: CW

Checked By: OC

Approved By: OC



Client: Redrow Homes

Site: Dunkirk Farm, Ellesmere Port, CH1 6PY

Project Number: 20-1627 | Rev: 1.0

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