7 Ecology

Introduction

7.1 This chapter assesses the potential effects of the proposed residential development at Cefn Way, Wrexham on ecology and nature conservation. The Site boundary is shown in **Figure 7.1** below.

7.2 Proposed Development comprises a phased residential development for the construction of up to 900 residential dwellings with associated infrastructure (playing fields, open space and SUDs attenuation) with all matters reserved except for detailed means of primary highway access. The Proposed Development will be divided into 2 phases; Phase 1comprises development in the north-west and south-west of the Site for up to 600 units. Phase 2 will comprise the development of the eastern area of the Site to provide an additional 300 units. The link road will also be provided in this phase, which does not extend past the northern Site boundary. This Chapter assesses both phases independently, with standalone mitigation provided for each phase. The Phasing Plan is provided in **Appendix 7.1** with the Illustrative Masterplan provided in **Appendix 7.2**

7.3 The survey effort completed for great crested newts *Triturus cristatus* (GCN) discussed in the Chapter deviates from best practice guidelines. The lower survey scope is justified by the extent of previous surveys completed for GCN on-site over the past 10 years, and the extensive knowledge of the meta population in the area. The reduction in survey effort was first agreed with the Local Planning Authority (LPA), details of which is included in **Table 7.4.**

7.4 In addition, only two update Bat Activity and Static Detector Surveys were completed in 2022, which does not follow best practice guidance. However, the aim of these surveys was to act as updates from the full monthly surveys completed in May-October 2021. As there had not been any change in on-site habitats between 2021 and 2022, and the results of the update surveys were similar to those completed in 2021, undertaking further update surveys was deemed unnecessary as the results would only have compounded the current assessment of Site's importance for local bats.

7.5 The chapter describes the methods used to assess the impacts, the baseline conditions currently existing at the Site and surroundings, the potential direct and indirect impacts of the development arising from the development as changed and the mitigation measures required to prevent, reduce, or offset the impacts and the residual impacts. It has been written by Tyler Grange.

7.6 This Chapter is supported by the following figures and appendices

- Eco Assessment (**Appendix 7.3**)
- Aerial Bat Tree Assessment Tech Note (**Appendix 7.4**)
- Ecological Impact Assessment (**Appendix 7.5**)

- GCN survey (**Appendix 7.6**)
- GCN Results Plan (**Appendix 7.7**)
- Badger Survey (**Appendix 7.8)**
- P02a Badger Results Plan (**Appendix 7.9**)
- Bat Survey (**Appendix 7.10**)
- P06a Bat Results Plan (**Appendix 7.11**)
- Breeding Bird Survey (**Appendix 7.12**)
- Bird Results Plan (**Appendix 7.13**)
- AIA (**Appendix 7.14**)
- Habitat Features Plan (**Appendix 7.15**)

Planning Policy Context

National policy - Planning Policy Wales (PPW) Edition 12 (February 2024)

7.7 Section 6.4 of PPW considers biodiversity and ecological network and states that "the planning system has a key role to play in helping to reverse the decline in biodiversity and increasing the resilience of ecosystems, at various scales, by ensuring appropriate mechanisms are in place to both protect against loss and to secure enhancement."

7.8 Addressing the consequences of climate change should be a central part of any measures to conserve biodiversity and the resilience of ecosystems. Information contained in SoNaRR, Area Statements and species records from Local Environmental Record Centres should be taken into account. Development plan strategies, policies and development proposals must consider the need to:

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

7.9 The Biodiversity and Resilience of Ecosystems Duty (Section 6 Duty) states that "planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions. This means development should not cause any significant loss of

habitats or populations of species, locally or nationally and must provide a net benefit for biodiversity. In doing so planning authorities must also take account of and promote the resilience of ecosystems, in particular the following aspects:

- Diversity between and within ecosystems;
- The connections between and within ecosystems;
- The scale of ecosystems;
- The condition of ecosystems including their structure and function; and
- The adaptability to ecosystems.

7.10 In fulfilling this duty, planning authorities must have regard to:

- The list of habitats and species of principal importance for Wales, published under Section 7 of the Environment (Wales) Act 2016;
- The State of Natural Resources Report (SoNaRR), published by Natural Resources Wales (NRW); and
- Any Area Statement that covers all or part of the area in which the authority exercises its functions.

7.11 The broad framework for implementing the Section 6 Duty and building resilience through the planning system includes addressing: Diversity, Extent, Condition, Connectivity and Adaptability to change (DECCA).

7.12 The update to the PPW also included changes to the following policies that effect ecology:

7.13 Green Infrastructure: stronger emphasis on taking a proactive approach to green infrastructure covering cross-boundary considerations, identifying key outputs of green infrastructure assessments, the submission of proportionate green infrastructure statements with planning applications and signposting Building with Nature standards.

7.14 Net Benefit for Biodiversity and the stepwise approach: further clarity is provided on securing net benefit for biodiversity through the application of the stepwise approach, including the acknowledgement of off-site compensation measures as a last resort, and the need to consider enhancement and long-term management at each step. The use of the green infrastructure statement as a means of demonstrating the stepwise approach is made explicit. The importance of strategic collaboration to identify and capture larger scale opportunities for securing a net benefit for biodiversity is recognised.

7.15 Protection for Sites of Species Scientific Interest (SSSI): strengthened approach to the protection of SSSIs, with increased clarity on the position for site management and exemptions for minor development necessary to maintain a 'living landscape'. Other development is considered unacceptable as a matter of principle. Exceptionally, a

planned approach may be appropriate where necessary safeguards can be secured through a development plan.

7.16 Trees and Woodlands: closer alignment with the stepwise approach, along with promoting new planting as part of development based on securing the right tree in the right place.

Wrexham Local Development Plan 2013 – 2028

7.17 The environmental Policies include:

Policy SP14: Natural Environment
Development will only be permitted where it seeks to protect, conserve and enhance the natural environment including:

- Special Areas of Conservation, Special Protection Areas, and Ramsar Sites;
- Sites of Special Scientific Interest and National Nature Reserves;
- Protected Species and their habitat;
- The Clwydian Range and Dee Valley Area of Outstanding Natural Beauty
- Local Wildlife Sites;
- Local Nature Reserves;
- Special Landscape Areas;
- Natural landscape features and Green Infrastructure such as trees, hedges and woodland which contribute to the quality and diversity of the natural environment and play an important role in mitigating the impact of climate change;
- The quality of natural services including water, soundscape, air and soils; and
- Habitats and species of principal importance to Wales.

Policy NE1 International and National Nature Conservation Designations

Development likely to significantly affect any protected site of international importance, either alone or in combination with other plans or projects, will be subject to a Habitat Regulations Assessment (HRA). Development will only be permitted where it is possible to ascertain no adverse effect on the integrity of the habitat or site or where there are

Imperative Reasons of Overriding Public Interest and compensatory measures are secured.
Permission for development likely to impact the special features of a Nationally Designated Site will only be granted in exceptional circumstances where appropriate compensation can be provided.

Development likely to affect any protected species will only be permitted when there is no satisfactory alternative and if there is no detrimental impact to the maintenance of the population concerned at a favourable conservation status in its natural range. The proposals must adequately demonstrate that they are for the purposes of preserving public health or safety or reasons of overriding public interest.

Policy NE2: Local Designations for Nature Conservation and Geological Importance

Development which adversely affects the nature conservation and/or geological importance of locally designated sites, habitats and species will only be permitted in exceptional circumstances where it can be demonstrated that:

i. There is no satisfactory alternative location for the development which avoids nature conservation impacts; and
ii. Compensation measures are designed to ensure that there is no reduction in the overall nature or geological conservation value of the site.

Policy NE3 Trees, Woodlands and Hedgerows

Development will only be permitted where it does not cause unacceptable harm to trees, woodlands and hedgerows of significant public amenity, natural or cultural heritage value or those that provide important ecosystem services.

Development affecting all existing and new proposed woodlands should:

i. Support proposals which assist in the respectful and appropriate use and protection of woodlands and boundary edges;
ii. Promote sustainable management to deliver multiple benefits; and
iii. Support the relevant aims and objectives of the Wrexham Tree & Woodland Strategy 2016-2026 and all subsequent amendments.

Where adverse effects cannot justifiably be avoided and sustainable integration is not possible then adequate mitigation will be required. In such cases development should include proposals for the planting of new trees, woodlands, and hedgerows within the site, ensuring connectivity between proposed and existing green infrastructure.

Biodiversity Action Plans (BAP) - Species and Habitats of Principal Importance and the UK Biodiversity Action Plan

7.18 The UK Post-2010 Biodiversity Framework succeeded the UK BAP partnership in 2011 and covers the period 2011 to 2020. However, the lists of Priority Species and Habitats agreed under the UKBAP still form the basis of much biodiversity work in the UK. The current strategy for Wales was published by Natural Resources Wales in their 'State of Natural Resources Report (SoNaRR) ', dated October 2016. Although the UK BAP has been succeeded, SAPs developed for the UK BAP remain valuable resources for background information on priority species under the UK Post-2010 Biodiversity Framework.

7.19 The commitment to preserving, restoring or enhancing biodiversity is further emphasised being listed in section 7 of the Environment (Wales) Act 2016.

Assessment Methodology and Significance Criteria

Identification of the Study Area

7.20 The Site covers an area of 40.27 hectares and comprises mainly arable fields and amenity grassland, in use as playing fields, bordered by hedgerows and mature trees; public footpaths also cross the Site at several points. Cefn Road runs along the

western Site boundary, and Bryn Estyn Road along the northern boundary. Residential development lies to the north and west of the Site, and agricultural fields to the south and east. Wrexham Industrial Estate is located 1.35km east of the Site. The redline boundary is shown **Figure 7.1** below.

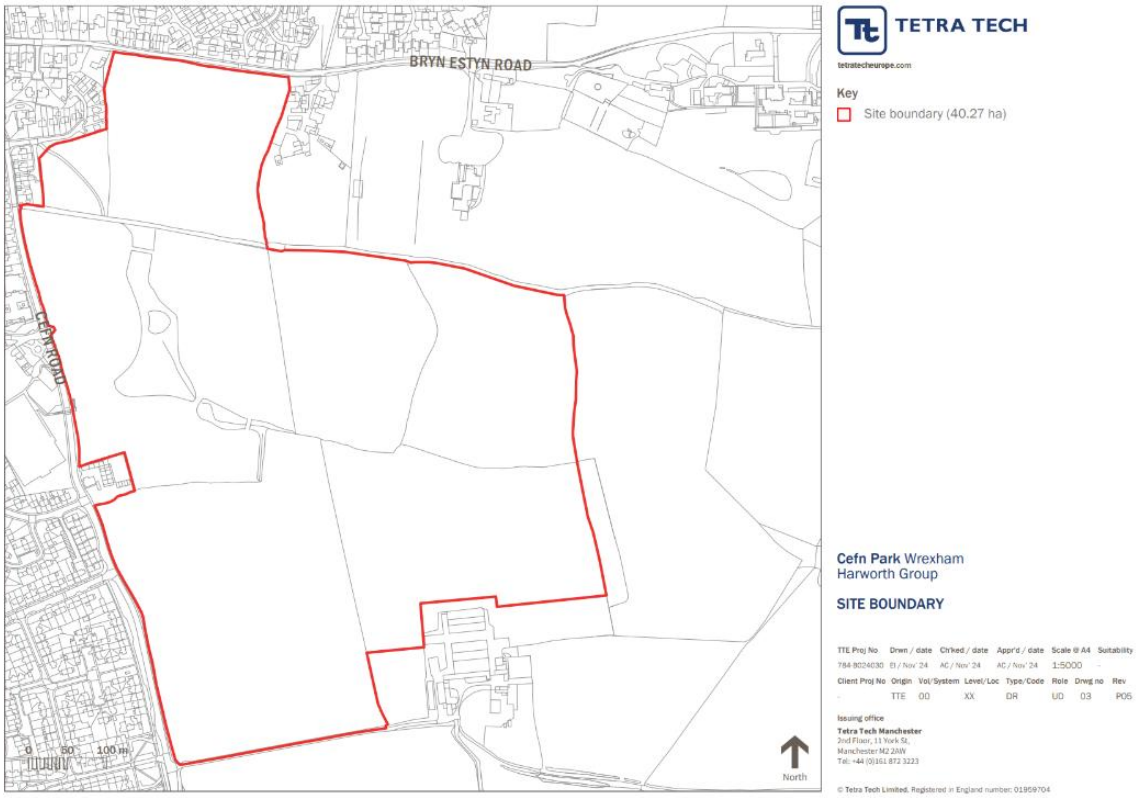


Figure 7.1 Site boundary

Desk Study

7.21 A desk-based study was conducted whereby records of designated sites and records of protected and priority species were purchased and interrogated for the Site and the surrounding landscape. The aim of the data search is to collate existing ecological records for the Site and adjacent areas. Obtaining existing records is an important part of the assessment process as it provides information on issues that may not be apparent during a single survey, which by its nature provides only a 'snapshot' of the ecology of a given site.

7.22 The following resources were consulted/contacted:

- Natural Resources Wales Interactive Map Viewer ;
- Local Environmental Records Centre for North Wales (COFNOD); (Data ordered on 15/12/2022 and received on 25/12/2022);
- Wrexham County Borough Council website;
- Joint Nature Conservation Committee (JNCC) website;
- Ordnance Survey mapping; and
- Google Maps, including aerial photography.

7.23 The following areas of search around the boundary of the Site boundary were applied:

- 2km for protected and priority species, national statutory designated and non-statutory sites; and
- 10 km for European statutory sites.

Extended Phase 1 Habitat Survey

7.24 An 'Extended' Phase 1 Survey was conducted on the 16th October 2020 by Laura Dennis, an experienced field ecologist. This was then updated by Dale Mortiboys (ACIEEM, FISC lvl 3) and Elliot Grundy on 22nd August 2023, experienced and suitably qualified ecologists. The methods used during the walkover survey broadly followed methods used in an 'extended' Phase I habitat survey and entailed recording the main plant species and classifying and mapping habitat types with reference to the Habitat Definitions provided by the UK Habitat Classification Working Group.

7.25 Additionally, the habitats identified were evaluated for their potential to support legally protected and notable fauna species. Where access allowed, adjacent habitats were also considered in order to assess the Site within the wider landscape and to provide information with which to assess possible impacts within the context of the Site boundary.

Protected Species Surveys

7.26 The following protected species surveys were conducted. Methods and results of the surveys can be found within **Appendix 7.6** to **Appendix 7.13**.

- Badger Surveys
- Breeding Bird Surveys
- Great Crested Newt Surveys
- Bat Surveys, including Preliminary Roost Assessment (PRA) of trees, Aerial Inspection of Trees for Bats, Bat Activity Transect Surveys and Static Detector Surveys

Tree Survey

7.27 A tree survey has been undertaken in accordance with BS5837:2012 to inform the proposed masterplan and an assessment of the outline scheme as it relates to existing trees and hedgerows has been prepared to accompany this ES. The Arboricultural Impact Assessment 13539_R01f is included at **Appendix 7.14**

Approach to Assessment

7.28 The Environmental Statement Chapter subsequently assesses potential ecological impacts in accordance with the CIEEM Ecological Impact Assessment (EcIA) guidance.[1]

Sensitivity, Value or Importance

7.29 **Geographical Scope** - A desk-based study and initial Site survey were used to identify important ecological features (sites, habitats and species) which may be affected by the development proposals, to determine the potential 'zone of influence ' (ZOI), and to inform the scope of further survey work required.

7.30 The study area extends beyond the Site boundary to include a 10km radius for international statutory site designations, a 2km radius for national statutory site designations and all protected and priority species records.

7.31 **Temporal scope** – The Ecological Impact Assessment (EcIA), undertaken to inform this ES, will cover both the construction and operational phases of the Proposed Development.

7.32 **Sensitivity of Receptors** - The results of the initial desk study, site surveys and data gathered during detailed surveys will be used to evaluate the importance of ecological resources within the ZOI in accordance with the CIEEM EcIA guidance.

7.33 The guidance provides a framework for the evaluation of features that considers the direct biodiversity importance of habitats and species, the indirect importance of features which help support the ecological integrity of key features, legal protection for both sites and species, and evaluation against national and local planning guidance and objectives. It uses a geographic frame of reference for identifying important ecological features in accordance with the scale in **Table 7.1**.

Table 7.1: Importance of Ecological Features

Designation	Receptors
International	An ecological feature (species, designated site or habitat) which is important at an international level. A population that would meet the published selection criteria as a qualifying feature for designation of a Special Area of Conservation (SAC). An internationally designated site or candidate site, i.e. an Special Protection Area (SPA), proposed SPA (pSPA), SAC, candidate SAC (cSAC), Ramsar site, or an area which would meet the published selection criteria for such designation. Other significant areas of Annex 1 priority habitats listed in the Habitats Directive, the loss of which would significantly change the overall range and area at the European scale in the long term.

[1] CIEEM, 2024. Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, Version 1.3. Winchester: Chartered Institute of Ecology and Environmental Management (CIEEM).

Designation	Receptors
National (Wales)	Nationally significant populations of species identified in Environment (Wales) Act, Part 12 as being of principle importance for the conservation of biodiversity in Wales, or otherwise formally deemed to be nationally rare and threatened (e.g. 'red-listed'), the loss would significantly change the species' overall conservation status (i.e. range, abundance, population trend) at the national scale. A population that would meet the published selection criteria as a qualifying feature of a Site of Special Scientific Interest (SSSI). A nationally designated site, i.e. SSSI, National Nature Reserve (NNR) or discrete area which would meet the published selection criteria for national designation. A significant area of a non-designated habitat type identified in Environment (Wales) Act, Part 1 as being of principle importance for the conservation of biodiversity in Wales, the loss of which would significantly change the overall range and area should be a major component of areas that are at near-equivalence to SSSIs, meeting most of the published SSSI selection criteria.
Regional (North Wales)	Regionally significant populations of species identified in the NERC Act Part 1 as being of principal importance for the conservation of the biodiversity of Wales, or otherwise formally deemed to be nationally rare and threatened (e.g. 'red-listed'), the loss of which would significantly change the species' overall conversation status (i.e. range, abundance, population trend) at the regional scale. A significant area of non-designated habitat type identified in the NERC Act, as being of principal importance for the conservation of biodiversity in Wales, the loss of which would significantly change the overall range and area of that habitat at the regional level in the long term. Significant areas of semi-natural ancient woodland that do not meet the national value criteria (above) should be considered at this scale due to the irreplaceable nature of such habitat.
County (Wrexham)	Significant populations of species identified in the Environment (Wales) Act 2016, under Section 7 as being of principal importance for the conservation of biodiversity in Wales, or otherwise formally deemed to be nationally rare and threatened (e.g. 'red-list'), or priority species in the County BAP the loss of which would significantly change the species' overall conservation status (i.e. range, abundance, population trend) at the County scale. Sites formally recognised by local authorities, e.g. Sites of Interest for Nature Conservation (SINC) or considered to meet published ecological selection criteria for such designation. A significant area of a non-designated habitat type identified in the Environment (Wales) Act, Part 1 as

[2] https://www.legislation.gov.uk/anaw/2016/3/contents/enacted

Designation	Receptors
	being of principle importance for the conservation of biodiversity in Wales, the loss of which would significantly change the overall range and area of that habitat at the county scale in the long term. A significant area of key habitat identified in the County BAP.
Local (Wrexham)	Species listed on any of the above-mentioned priority lists, that appreciably enrich District/Borough biodiversity, but which are not in themselves of District/Borough importance of greater. Semi-natural habitats, listed on any of the above-mentioned priority lists, that appreciably enrich local biodiversity, but which are not in themselves of District/Borough importance or greater.
Site	Species populations of limited ecological importance due to their size, composition or lack of threat/rarity. The loss of such features would have no discernible impact on the species'/habitat's overall range and conservation status at any administrative scale in the long term. Areas of habitat of limited ecological importance due to their size, species composition or lack of threat/rarity. The loss of such features would have no significant impact on the habitat's overall range and conservation status at any administrative scale in the long term.

7.34 **Magnitude of Impact -** The assessment should consider impacts including direct loss of habitats, fragmentation and isolation of habitats, disturbance or killing/injury of species, changes to key ecological features, and changes to the local hydrology or water quality.

7.35 The following factors are considered when describing ecological impacts:

- Positive or negative – an impact can improve or reduce the quality of the environment, evaluated against nature conservation objectives and policy;
- Extent – this is the area over which an effect occurs;
- Magnitude – the size or amount of an effect, determined on a quantitative basis where possible (see **Table 7.2** below);
- Duration – the time for which an effect is expected to last prior to recovery or replacement of the resource of feature;
- Timing and frequency – some effects are only likely if they happen to coincide with a critical life-stage or seasons. Others may occur if the frequency of an activity is sufficiently high;
- Reversibility- an irreversible (permanent) effect is defined as one from which recovery is not possible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it. A reversible (temporary) effect is one from which spontaneous recovery is

possible or for which effective mitigation is both possible and enforceable; and

- Cumulative effects – where consideration is given to any other developments within the ZOI, together with the Proposed Development, may result in significant effects.

Table 7.2 : Magnitude of Effects

Magnitude	Environmental Impact
Major	The impact is likely to have an adverse / positive effect on the integrity of a site or the conservation status of a species or species assemblage.
Moderate	The impact affects a site or the conservation status of a species or species assemblage but the adverse impact would not affect integrity of that site or the conservation status of a species or species assemblage. A moderate positive impact would benefit conservation status of a site / species / species assemblage.
Minor	The impact is likely to have an adverse / positive effect an ecological feature but would not affect integrity or conservation status.
Negligible	An effect positive or negative would be minimal.
Neutral	No detectable change from the baseline condition.

7.36 The significance of an effect is the product of the magnitude of the impact and the importance or sensitivity of the ecological feature affected. The CIEEM EcIA Guidance provides a complex framework for the consideration of impacts to ecological features and the reader is referred to the actual guidance for full details. However, in summary, greater levels of significance are generally ascribed to large impacts on features of higher ecological importance and lesser levels of significance are generally ascribed to small impacts on features of higher ecological importance, or larger impacts on features of lower ecological importance.

7.37 In accordance with professional guidance and terminology; a significant effect, in ecological terms, is defined as an effect (positive or negative) on the integrity of a designated site or ecosystem(s) and/or the conservation status of habitats or species within a given geographical area, including cumulative effects. Insignificant effects are those that would not result in such changes.

7.38 The importance of any features that would be significantly affected is then used to identify geographical scales at which the effect is significant. This value relates directly to the consequences, in terms of legislation, policy and/or development control at the appropriate level. So, a significant negative effect on a feature of importance at one level would be likely to trigger related planning policies and, if

permitted, generate the need for development control mechanisms as described in those policies.

7.39 Significant effects on features of ecological importance should be mitigated (or compensated for) in accordance with the guidance derived from policies applied at the scale relevant to the feature or resource.

7.40 Effects are unlikely to be significant where features of local importance or sensitivity are subject to small scale or short-term effects. However, where there are a number of small scale effects that are not significant alone, it may be that, cumulatively, these may result in an overall significant effect.

7.41 The assessment of effects uses the terminology described above. However, to provide consistency with the terminology throughout the ES potential and residual effects (positive or negative) are also described using the terms set out in **Table 7.2**.

7.42 **Impact Prediction Confidence** - It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out in **Table 7.3** below:

Table 7.3 Impact Prediction Confidence

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

Assumptions / Limitations

7.43 No limitations were experience during the "Extended" Phase 1 Habitat Survey or data search. Any limitations experienced during the various protected species surveys are detailed within the associated Appendices (**Appendix 7.6** to **Appendix 7.13**).

7.44 Where necessary, where information is not available or where survey results are inconclusive, assumptions may be made (with justification) to assess potential impacts on ecological receptors and any mitigation solutions proposed. In such instances, in accordance with CIEEM guidelines, the precautionary principle will be applied which states that: "In cases of reasonable doubt, where it is not possible to robustly justify a conclusion of no significant effects, mitigation/compensation measures should be applied in accordance with the precautionary principle".

Consultation

7.45 Consultation completed to date is provided in **Table 7.4** overleaf.

Table 7.4 – Consultation Table

Consultation	Date and Time	Comments	Actions
Consultation with Emma Broad, Ecologist at Wrexham County Borough Council over email.	17th May 2021 11:30am	Consultation with Emma to agree scope of GCN surveys. Email from Emma included below: *I can confirm that the best course of action would be a single nights survey tonight to confirm presence on the ponds, and follow-up eDNA on the ones where no newts were seen. I suggest that with the pond not previously surveyed that a medium population is assumed and a mitigation plan based on that population size class. Further survey work would in my opinion not add any more information.*	Complete a single traditional GCN presence/likely absence survey of all ponds within and adjacent to the Site, followed by an eDNA survey.

Baseline Conditions

Statutory/Non Statutory Nature Conservation Designations

7.46 The data search was based on records purchased from COFNOD, as well as data from the MAGIC website and Natural Resources Wales Interactive Mapping tool.

7.47 The data search returned four Natura 2000 sites within 10km of the Site. No national statutory designated sites were located within 2 km of the Site, however three non-statutory designated sites were located within 2 km of the Site. These are detailed in **Table 7.5** overleaf.

Table 7.5: Designated Sites

Designated site	Distance and direction from site	Citation	Ecological Importance
Midland Meres and Mosses Phase 2B Ramsar	2.5 km south-east	Designated for its range of habitats include nutrient-rich water bodies (meres), associated fringing habitats of reed swamps, fen, carr and damp pasture, and floating quaking bog (schwingmoor). The wide range of resulting habitats supports numerous rare species of plants and invertebrates.	International
Johnstown Newt Sites SAC	5.2 km north	The population of great crested newts *Triturus cristatus* is one of the largest known in Great Britain and has been the focus of much conservation management over the last few years. Breeding sites are provided in part by a mining subsidence pool, and natural water-filled hollows on clay, whilst other ponds have been created as part of nature conservation management. Terrestrial habitat varies from marshy grassland, grazed farmland and swamp through to scrub and broad-leaved woodland. Good populations of the widespread amphibian species are also present.	International
River Dee and Bala Lake SAC	5.8 km north	Designated for the presence of Annex I habitat 3260 *'Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation*' and the Annex II species Atlantic Salmon	International

Designated site	Distance and direction from site	Citation	Ecological Importance
		Salmo salar and floating water-plantain *Luronium natans*, along with the Annex II species Sea lamprey *Petromyzon marinus*, Brook lamprey *Lampetra planeri*, River lamprey *Lampetra fluviatilis*, bullhead *Cottus gobio* and otter *Lutra lutra.*	
Berwyn and South Clwyd Mountains SAC / Berwyn SPA	8.1 km south	Designated as an SAC for the presence of Annex I habitats 4030 *'European dry heaths'* and 7130 *'Blanket Bogs'*, along with 6210 *'Semi-natural dry grasslands and scrubland facies on calcareous substrates*', 7140 *'Transition mires and quaking bogs*', 8120 *'Calcareous and calcshist screes of the montane to alpine levels*' and 8210 *'Calcareous rocky slopes with chasmophytic vegetation*'. Designated as a SPA as the area regularly supports hen harrier *Circus cyaneus* 2.2% of the GB breeding population, merlin *Falco columbarius* 1.1%, peregrine falcon *Falco peregrinus* 1.5% and red kite *Milvus milvus* 1.2%.	International
Cefn Park Local Wildlife Site (LWS)	830 m south-east	A series of broadleaved woodlands within Cefn Park Estate.	County
Borras Bog LWS	1 km north	An acid bog with birch canopy that is in excellent condition and unusual for the Wrexham area.	County
Errdig Estate LWS	1.5 km south-east	National Trust Estate with woodlands, semi-improved neutral grasslands and marshes.	County

Habitats and Flora

7.48 The habitats present at the Site are summarised below in **Table 7.6**, along with a description of the composition of the main plant species present and an assessment of their ecological importance. The location of habitats are shown on the Habitats Features Plan **13539/P01a** at **Appendix 7.15.** The habitats include:

- Amenity grassland;
- Arable;
- Hedgerows;
- Invasive non-native species (Japanese knotweed);
- Pond;
- Scrub;
- Scattered trees;
- Semi-natural broadleaved woodland; and
- Tall ruderal.

Table 7.6: Habitats and Flora

Habitat	Description and Species	Ecological Importance
Arable Land	A large proportion of the Site is given over to arable crop production, mostly maize. At the time of the survey all fields had been harvested and left as stubble, except one in the south-east which was fallow.	This habitat is considered to be of **negligible ecological importance**.
Amenity Grassland	Areas of amenity grassland are present towards the west of the Site, used as informal sports pitches and public recreation. All areas are maintained as short-mown grassland and are dominated by common grasses and forbs. The shortness of the sward made a full species record difficult, but species identified include cock's-foot *Dactylis glomerata* (A), white clover *Trifolium repens* (A), ribwort plantain *Plantago lanceolata* (F), dandelion *Taraxacum officinale agg.* (F), ragwort *Senecio jacobaea* (O) and common chickweed *Stellaria media* (O).	This habitat type is of **negligible ecological importance**.
Hedgerows	A network of hedgerows are present along field boundaries throughout the Site. They vary in condition, but include examples of species-rich, intact hedgerows with mature trees. Most are dominated by hawthorn *Crataegus monogyna*, (D) or holly *Ilex europaeus* (A), but other species present include elder *Sambucus nigra* (F), hazel *Corylus avellana* (O), sycamore *Acer pseudoplatanus* (O), and pedunculate oak *Quercus robur* (O).	The hedgerows provide habitat connectivity through the Site and to habitats beyond the Site boundary and collectively are a Priority Habitat of **local ecological importance**.

Habitat	Description and Species	Ecological Importance
Invasive non-native Species	A stand of Japanese knotweed *Reynoutria japonica* is present at the western boundary of the amenity grassland, in the west of the Site.	This is of **negligible ecological importance**, but a strategy for treatment and/or removal will be required prior to development to adhere to current legislation (Schedule 9 of the WCA 1981).
Pond	A pond is present within woodland in the west of the Site. It is shallow and heavily shaded by woodland vegetation throughout the year. Very little aquatic or marginal vegetation is established, and the waterbody is full of leaf litter. It provides aquatic habitat that is not present elsewhere on the Site and is therefore of ecological importance within the context of the Site. It also provides breeding habitat for great crested newts (discussed below). A small and very shallow ephemeral pool was noted in the centre of the south-eastern parcel of arable land in May 2021, which subsequently dried during the species surveys completed within the Site.	This habitat is considered to be of **local ecological importance.**
Scrub	Small areas of scrub are distributed through the Site which include areas dominated by bramble *Rubus fruticosus* agg (D), and other areas of mixed scrub including hawthorn (A), holly (F), hazel (F) and blackthorn *Prunus spinosa* (O). An area of scrub is also present in the north of the Site, which is dominated by coppiced willow *Salix sp.* (O).	The scrub is of **negligible ecological importance** but is likely to provide foraging and nesting opportunities for wildlife including birds and small mammals.
Scattered Trees	A number of scattered mature trees are also present on the Site which are mostly located within the amenity grassland to the west, with additional specimens present within some of the hedgerows. Species include pedunculate oak and sycamore.	Scattered trees are of **local ecological importance.** The mature trees provide foraging and nesting habitat for a range of bird and bat species.

Habitat	Description and Species	Ecological Importance
Semi-natural broadleaved woodland	A block of semi-natural broadleaved woodland is located in the west of the Site, at the centre of the amenity grassland area. The canopy is dominated by pedunculate oak, with ash *Fraxinus excelsior* (F), silver birch *Betula pendula* (F), cherry *Prunus avium* (O) and hazel (O). The understorey is mostly holly (A) and hawthorn (A) and the field layer is dominated by common nettle *Urtica dioica*.	The broadleaved woodland is of **local ecological importance**. The woodland provides foraging and nesting habitat for a range of species, including birds and amphibians.
Tall Ruderal	Several areas dominated by tall ruderal vegetation are present, mostly associated with arable field boundaries. Species include common nettle (A), hogweed *Heracleum spondylium* (F), cow parsley (F) and bracken *Pteridium aquilinum* (O).	The tall ruderal is of **negligible ecological importance** but is likely to provide foraging and nesting opportunities for wildlife including birds and small mammals.

Adjacent Habitats

7.49 To the north of the Site is residential housing and amenity grassland associated with Wrexham Rugby Club, and to the west is also residential housing. Agricultural fields extend to the east and south, along with a woodland copse on the eastern Site boundary.

Protected and Notable Species

7.50 The below section sets out the potential for protected species on the Site and a summary of the protected species surveys results (detailed results are provided in **Appendix 7.6** to **Appendix 7.13**). Species which are considered likely absent from the Site based on professional judgement, following consideration of the habitats within the Site, signs of species presence at the time of survey and data search records, are not discussed.

Amphibians

7.51 The data search returned records of common frog *Rana temporaria*, common toad *Bufo bufo*, smooth newt *Lissotriton vulgaris* and great crested newt (GCN) within 2 km of the Site. No European Protected Species (EPS) licences were returned for GCN within 2 km of the Site.

7.52 There is one pond located on the Site (Pond 6) and an additional six ponds within 250 m of the Site (Pond 1 to Pond 5 and Pond 7). Presence/Absence Surveys using a combination of eDNA, bottle trapping and torching were undertaken on all ponds in May and June 2021. The surveys confirmed GCN presence in the on-site pond (Pond 6) and three ponds (Pond 3, Pond 4 and Pond 5) lying to the north of the Site. Detailed

survey results for GCN can be found in **Appendix 7.6** and are shown on Plan 13539/P04 at **Appendix 7.7.**

7.53 Although the results of the Presence/Absence Surveys would indicate that only a small GCN metapopulation (i.e. 1-10 individuals) exists across the ponds surveyed, based on previous surveys in the area and known GCN distribution across Wrexham, it is considered that the ponds form part of a single medium-sized metapopulation.

7.54 The terrestrial habitat within the Site of optimal suitability to support GCN is the woodland containing Pond 6 and the connecting hedgerows through the Site and associated field margin vegetation, which also provide connectivity to the wider landscape. The majority of the Site however comprises intensive agricultural land/short-mown playing fields which is sub-optimal for terrestrial GCN and does not offer refuge or hibernation opportunities. Whilst GCN would not be reliant on sub-optimal habitats for sustaining the metapopulation present, the species will inevitably commute and forage within such habitat when dispersing through the landscape.

7.55 Other more mobile amphibian species such as common toad and common frog may be present within habitats on-site, such as the hedgerows and woodland, and may breed within the on-site pond. Common toads are a priority species under the Environment Act (Wales) 2016.

7.56 Overall, the population of GCN supported by the Site is considered to be of **local ecological importance**. The habitats within the Site are considered to be of **local ecological importance** for common amphibians, habitat of the same value is present to the south, east and north of the Site.

Badger

7.57 The data search returned 51 records of badger *Meles meles* within 2 km of the Site in the past ten years, with several records located within the Site itself.

7.58 The update Badger Survey in 2023 confirmed continued badger activity across the Site, with evidence of foraging and active setts within and surrounding the Site boundary. Five distinct separate setts were identified during previous Badger Surveys and confirmed during the 2023 update. Two of the setts (Sett 2 and Sett 4) were active main setts, with the remaining three consisting of two active outlier setts (Sett 1 and Sett 3) and a single partially-used annex sett (Sett 5). Additional evidence of badgers utilising the Site include hairs, latrines, and prints. Detailed survey results for badger can be found in **Appendix 7.8** and are shown on Plan 13539/P02a at **Appendix 7.9.**

7.59 Although badgers are a protected species they are protected for animal welfare reasons, not because they are a threatened or endangered species. As such, any population is not likely to be of importance in maintaining populations beyond the immediate locality and as such are of **negligible ecological importance**. However, setts should be retained and protected where possible to abide by legislation.

Bats

7.60 The data search returned records for eight bat species within 2 km of the Site. Species included common pipistrelle *Pipistrellus pipistrellus*, soprano *pipistrelle Pipistrellus pygmaeus*, noctule *Nyctalus noctula*, brown long-eared *Plecotus auratus*, Daubenton's *Myotis daubentonii*, Brandt's *Myotis brandtii*, whiskered *Myotis mystacinus*, and lesser horseshoe *Rhinolophus hipposideros*. The nearest of these was a record of common pipistrelle approximately 200 m south of the Site in 2016. The data search also retuned records from 2019 of a known lesser horseshoe maternity roost present within the Erlas Victorian Walled Garden estate approximately 260 m north of the Site.

7.61 The wider Site offers roosting opportunities for bats within the mature trees. To date, a Potential Roost Assessment (PRA) of the trees in Phase 1 of the development has been completed and eights trees were subsequently surveyed via an Arial Inspection in 2022. Tree 3 and Tree 4 retained High bat roosting potential, Tree 1, Tree 6 and Tree 8 retained Moderate bat roosting potential, and Tree 28 retained Low bat roosting potential. Tree 2 and Tree 20 were downgraded to Negligible bat roosting potential (tree reference numbers taken from the Arboricultural Impact Assessment (AIA) 13539_R01f at **Appendix 7.14**). The trees were reinspected in 2023 and the roosting suitability of these eight trees remained the same.

7.62 Consulting the AIA, of the trees that retained roosting potential, only Tree 28 (Low bat roosting potential) would require removal to facilitate development according to the Illustrative Masterplan. Should the masterplan or impacts to tree change, additional bat surveys may be required once detailed tree loss is known to confirm the importance of the roosting bat assemblage within the Site.

7.63 The Site largely comprises arable and amenity grassland, of limited value to foraging bats. The habitats of highest importance for foraging and commuting bats within the Site include the hedgerows, woodland and pond, as confirmed during the Bat Activity Surveys and Static Detector Surveys conducted in 2021 and 2023 (detailed survey results for bats can be found in **Appendix 7.10,** and are shown on Plan 13539/P06a at **Appendix 7.11.**). The habitats within the Site are common in the local area.

7.64 Activity relating to the more light-intolerant species, i.e. Myotis species and lesser horseshoe, was also recorded adjacent to the woodland and pond area in the west. The Site is located within the core sustenance zone (CSZ) of the lesser horseshoe maternity roost located within Erlas Victorian Walled Garden estate approximately 260 m north of the Site. Four passes in 2023 and 2 passes in 2021 of lesser horseshoe were recorded during the Static Detector Surveys and no passes of the species were recorded on any Activity Surveys in 2023 or 2021. Consulting the AIA (**Appendix 7.14**) the outline Illustrative Masterplan would only require small sections of hedgerow loss for access. However, it is understood that further bat surveys may be required once final hedgerow and vegetation loss is known, to fully assess the impact of the development on foraging and commuting bats.

7.65 Overall, the assemblage of bats utilising the Site for foraging and commuting is considered to be of **local ecological importance**.

Birds

7.66 The data search by COFNOD confirmed the presence of a large number of bird species in the surrounding area, which are expected given the habitats present. The majority were common urban/suburban species, with records of Schedule 1 species also returned. No evidence of such Schedule 1 species was noted within the Site during the surveys completed, however, the Site does provide some suitable habitat for nesting Hobby *Falco subbuteo,* however disturbance from the playing fields makes this nesting unlikely. Other Red/Amber list species were also identified but they were not recorded during the surveys completed within the Site. A summary of bird species found to be using the Site for breeding when surveyed in 2021 is provided in **Appendix 7.12** and are shown on Plan 13539/P03 at **Appendix 7.13.**

7.67 Following the Breeding Bird Surveys, it was concluded that the principal ornithological value of the Site for nesting is within the boundary vegetation comprising hedgerow and scrubby margins, which were noted to support probable breeding from a number of birds of conservation concern and other 'green list' species. The central woodland copse within the Site was also noted to support a wide range of both amber and green list species. The arable fields also provide value for two or three pairs of breeding lapwing *Vanellus vanellus,* recorded as the only red listed and Species of principal importance (Environment (Wales) Act 2016) probable breeders within the Site.

7.68 Whilst the playing fields within the Site offer no suitable habitat for nesting, up to 50 starlings *Sturnus vulgaris* (a combination of adults and juveniles) were recorded foraging in the playing fields, which are therefore considered to be important in maintaining bird populations locally for those species which utilise such grassland for foraging and rearing young, principally starling and thrushes.

7.69 Overall, the population of breeding birds the Site supports is considered to be of **local ecological importance**.

Hedgehog

7.70 Numerous records of hedgehog *Erinaceus europaeus* (listed as a species of principal importance under the Environment (Wales) Act 2016) were returned close to Site and in the wider area, the closest of which was approximately 24 m from the Site. Hedgerows, woodland habitat and other areas of dense ground cover within the Site would provide suitable habitat for hedgehogs. However, the majority of the Site comprises arable and amenity grassland of limited value to hedgehog. Overall, the Site is considered to be of **local ecological importance** for hedgehog.

Reptiles

7.71 Two records of grass snake *Natrix helevetica* were returned from 2010 and 2016, approximately 1.2 km from the Site. Records for adder *Vipera berus,* slow worm *Anguis fragilis* and common lizard *Zootoca vivipara* were all returned in the wider landscape but were close to the 2 km buffer.

7.72 There is some limited habitat suitable for reptiles within the Site, such as along field margins, where a longer grassland sward, scattered scrub and tall ruderals are present, the pond and surrounding woodland habitat offers suitable habitat for

grass snake. However, this is very limited in extent and is mostly located around the amenity areas of the Site, which are subject to a high level of human disturbance. All reptile species are listed as species of principal importance under the Environment (Wales) Act 2016. It is considered the likelihood of reptiles being present on-site is low and therefore, will **not be discussed further**.

Otter and Water Vole

7.73 A single record of water vole *Arvicola amphibius* was returned from the data search, located within the River Gwenfro approximately 840 m west of the Site. Six records of otter *Lutra lutra* were returned, the closest of which was located 790 m west of the Site in Caia Park. The majority of the otter records were of deceased individuals from road traffic collisions in the wider area. No rivers, streams or suitable habitat for either of these species is present on-site, and they therefore will **not be discussed further**.

Other Species

7.74 Five records for European hare *Lepus europaeus* (listed as a species of importance under the Environment (Wales) Act 2016) were returned in the data search within the last ten years. The closest of which was approximately 330 m from the Site boundary in 2019. The Site does provide some suitable habitat for the species, however, the species was not observed on-site during any of the Site surveys over multiple years. The Site is considered to have **negligible ecological importance** for maintaining brown hare populations, however due to the proximity and relative recency of the adjacent record, Precautionary Working Methods to protect the species are advised.

7.75 Five records of polecat *Mustela putorius* (listed as a species of importance under the Environment (Wales) Act 2016) were returned in the data search. All of these were in excess of approximately 1.5 km from the Site, and associated with the Wrexham industrial park wildlife site. The Site is therefore considered to have **negligible ecological importance** for maintaining polecat populations and is not discussed further.

Sensitivity of Receptors

7.76 **Table 7.7** below summarises the importance and sensitivity of the ecological receptors considered as part of this assessment.

Table 7.7 Evaluation of Ecological Receptors

Ecological Receptors	Evaluation /sensitivity	Ecological Importance
Statutory / non-statutory nature conservation designations		
Midland Meres and Mosses Phase 2B Ramsar	Ramsar sites provide statutory protection for wetlands and fall under Natura 2000 sites. They are of international importance.	**International importance**

Ecological Receptors	Evaluation /sensitivity	Ecological Importance
River Dee and Bala Lake SAC	SACs provide statutory protection for one or more special habitats and/or species (terrestrial or marine) listed in the Habitats Directive, and fall under Natura 2000 sites. They are of international importance.	**International importance**
Berwyn and South Clwyd Mountains SAC / Berwyn SPA	SACs provide statutory protection for one or more special habitats and/or species (terrestrial or marine) listed in the Habitats Directive. SPAs provide statutory protection for areas supporting one or more rare, threatened or vulnerable bird species listed in Annex I of the Birds Directive, or certain regularly occurring migratory species. SACs and SPAs both fall under Natura 2000 sites and are of internation importance.	**International importance**
Cefn Park LWS	LWSs provide non-statutory protection for sites with substantive nature conservation value locally based on important, distinctive and threatened habitats and species with the area. They are of local importance.	**County importance**
Borras Bog LWS	LWSs provide non-statutory protection for sites with substantive nature conservation value locally based on important, distinctive and threatened habitats and species with the area. They are of local importance.	**County importance**
Habitats and flora		
Hedgerows	A network of hedgerows present along field boundaries throughout the Site. Hedgerows are listed as a priority habitat under Section 7 Environment (Wales) Act (2016) .	**Local importance**
Pond	A pond within woodland in the west of the Site provides aquatic habitat that is not present elsewhere on the Site. The	**Local importance**

Ecological Receptors	Evaluation /sensitivity	Ecological Importance
	pond also provides breeding habitat for GCN and ponds are listed as a priority habitat.	
Scattered trees	Scattered mature trees located within the amenity grassland to the west, with additional specimens present within some of the hedgerows.	**Local importance**
Semi-natural broadleaved woodland	A block of semi-natural broadleaved woodland located in the west of the Site.	**Local importance**
Protected / priority species		
Amphibians	The presence of GCN was confirmed within on-site pond (Pond 6) and three ponds (Pond 3, Pond 4 and Pond 5) lying to the north of the Site. The terrestrial habitats of importance to GCN are the woodland, hedgerows and associated field margin vegetation. The majority of the Site (i.e. intensive agricultural land/short-mown playing fields) provides sub-optimal terrestrial habitat for GCN which may be used for commuting to more suitable habitat but does not offer refuge or hibernation opportunities and limited foraging opportunity. Other more mobile amphibian species such as common toad and common frog may be present within habitats on-site, such as the hedgerows and woodland, and may breed within the on-site pond. Common toads are a priority species under Section 7 of the Environment Act (Wales) 2016.	**Local importance for GCN and common amphibians**
Badger	Five badger setts are located on-site, two of which are main setts. Badgers are protected for animal welfare reasons, not because they are a threatened or endangered species. As such, any population present on-site is not likely to be of importance in maintaining populations beyond the immediate	**Negligible importance but setts protected by legislation**

Ecological Receptors	Evaluation /sensitivity	Ecological Importance
	locality. Setts are however still legally protected.	
Bats	Mature scattered trees within the Site may support roosting bats. The Site largely comprises arable and amenity grassland, of limited value to foraging and commuting bats. The habitats of highest importance for foraging and commuting bats include the hedgerows, woodland and pond. The habitats on the Site are common in the surrounding area. The Site is located within the core sustenance zone (CSZ) of the lesser horseshoe maternity roost located within Erlas Victorian Walled Garden estate approximately 260 m north of the Site. However, very few calls have been recorded during activity surveys (transects and static detectors) indicating the site is not important for foraging and commuting lesser horse shoe bats	**Local importance**
Breeding birds	The hedgerow, scrubby margins and woodland copse supports a range of both red and amber listed species (Birds of Conservation Concern). The arable fields provide habitat for two or three pairs of breeding lapwing, recorded as probable breeders which are also listed as a species of principal importance The amenity grassland is considered to be important in maintaining bird populations locally for those species which utilise such habitat for foraging and rearing young, principally starling and thrushes.	**Local importance**
Hedgehog	Hedgerows, woodland habitat and other areas of dense ground cover within the Site would provide suitable habitat for hedgehogs. However, the majority of the Site comprises arable and amenity grassland of limited value to hedgehog.	**Local importance**

Ecological Receptors	Evaluation /sensitivity	Ecological Importance
Brown hare	The Site does provide some suitable habitat for the species, however, the species was not observed on-site during any of the Site surveys over multiple years. The Site is therefore not considered important for maintaining brown hare populations locally.	**Negligible importance but considered during construction**

7.77 Some protected sites and habitats detailed in the baseline have not been included in **Table 7.7** as their potential impacts have previously been scoped out of the of the EIA as detailed in the EIA Scoping Report. Those scoped out and the reasons for this are included in **Table 7.8** below for completeness. These receptors will not be discussed further.

Table 7.8 Ecological Receptors Scoped Out of the EIA

Ecological Receptor	Justification
Johnstown Newt Sites SAC	Negligible impact during construction due to distance from the Site and lack of impact pathways. Features for which the SAC is designated lie at sufficient distance to be unaffected by construction works (generation of dust, noise, plant movements and similar). Negligible impact during operation due to distance from the Site and lack of impact pathways which could affect GCN populations for which the site is designated.
Errdig Estate LWS	Features for which the LWS is designated lie at sufficient distance to be unaffected by construction works (generation of dust, noise, plant movements and similar). Features for which the LWS is designated lie at sufficient distance to be unaffected by operational effects (increase in public access etc).
Arable land	Of negligible ecological importance
Amenity grassland	Of negligible ecological importance
Scrub	Of negligible ecological importance
Tall ruderal	Of negligible ecological importance

Embedded Mitigation

Construction

Table 7.9 Ecological Receptors and Associated Embedded Mitigation during the Construction Phase

Ecological Receptors	Embedded Mitigation
Habitats and flora	
Hedgerows, pond, scattered trees and semi-natural broadleaved woodland	Current development proposals include the retention of the vast majority of the hedgerows and scattered trees through and surrounding the Site, and the complete retention of the on-site pond (within copse in sports pitches to the SW) and woodland copse. Please see AIA at **Appendix 7.14**.
Protected / priority species	
Amphibians	Current development proposals include the retention of the pond used by breeding GCN, as well as the surrounding woodland copse, maintaining breeding habitat within the Site. In addition, the vast majority of the hedgerows will be retained to allow the species to commute through the Site. The sports pitches

Ecological Receptors	Embedded Mitigation
	surrounding the on-site pond on the northern-eastern Site boundary will be retained, allowing continued access to the wider GCN population within the three ponds (Pond 3, Pond 4 and Pond 5) lying to the north of the Site. In addition, the proposed development will include the creation of two additional ponds.
Badger	Current development proposals include the retention of four of the five badger setts on-site, including both main setts. One outlier sett will require closure to facilitate the development. The proposed retention of the vast majority of the hedgerows and complete retention of the woodland will provide commuting and foraging resources for badger post-development.
Bats	The retention of the mature scattered trees will provide continued roosting opportunities for bats through development. The retention of the trees, as well as the hedgerows, woodland and pond will also preserve the highest value habitats for foraging and commuting bats on-site.
Breeding birds	The general retention of the woodland, scattered trees and hedgerows will preserve nesting habitat for passerine species within the Site. The amenity grassland pitches important locally for foraging starling and thrushes will also be retained.
Hedgehog	The general retention of the woodland and hedgerows will provide foraging and commuting habitat for hedgehog post development.

The Completed and Operational Development

7.78 The indicative road layout as shown in the Parameter Plan at **Appendix 7.16**, details how the larger road within the development will be located away from the retained badger setts. This will aid in the reduction of potential disturbance to the species and likelihood of road collisions.

Assessment of Likely Significant Effects

7.79 The potential effects of the Proposed Development on each of the ecological features identified are described in **Table 7.10** below. Potential effects assessed are those that could arise from any changed or new effects arising from construction of the development.

Table 7.10 Potential Effects During the Construction Phase

Ecological Receptor (ecological importance)	Description of potential effect	Nature of effect	Legislative and planning policy implications (see end of table for abbreviations)	Potential level of effect in the absence of additional mitigation (but including embedded mitigation)
Statutory / non-statutory nature conservation designations				
Midland Meres and Mosses Phase 2B Ramsar (international importance)	The Proposed Development is located approximately 2.5 km from the Ramsar, which will avoid the risk of direct habitat loss during construction of both phases. There are no hydrological connections from the Site to the Ramsar. Therefore water pollution risk during construction is negligible for both phases. Due to the distance from the Site to the Ramsar, the Ramsar has been scoped out of assessment for air quality pollution impacts during construction, as detailed in the Air Quality report by Miller Goodall (Ref 102716-2), during both phases.	Negligible	PPW Section 6 Wrexham Local Plan Policy SP14, Policy NE1	Negligible
River Dee and Bala Lake SAC (international importance)	Development is located approximately 5.8 km from the SAC, which will avoid the risk of direct habitat loss during construction of both phases. There are no hydrological connections from the Site to the SAC. Therefore water pollution risk during construction is negligible for	Negligible	PPW Section 6 Wrexham Local Plan Policy SP14, Policy NE1	Negligible

Ecological Receptor (ecological importance)	Description of potential effect	Nature of effect	Legislative and planning policy implications (see end of table for abbreviations)	Potential level of effect in the absence of additional mitigation (but including embedded mitigation)
	both phases. This is evidenced in the Hydrology report by Adept (ref ERLP-ACE-XX-XX-RP-C-001). Due to the distance from the Site to the SAC, the SAC has been scoped out of assessment for air quality pollution impacts during construction, as detailed in the Air Quality report by Miller Goodall (Ref 102716-2), during both phases.			
Berwyn and South Clwyd Mountains SAC / Berwyn SPA (international importance)	Development is located approximately 8.1 km from the SAC/SPA, which will avoid the risk of direct habitat loss during construction of both phases. There are no hydrological connections from the Site to the SAC/SPA. Therefore, water pollution risk during construction is negligible for both phases. Due to the distance from the Site to the SAC/SPA, the SAC/SPA has been scoped out of assessment for air quality pollution impacts during construction, as detailed in the Air Quality report by Miller Goodall (Ref 102716-2), during both phases.	Negligible	PPW Section 6 Wrexham Local Plan Policy SP14, Policy NE1	Negligible

Ecological Receptor (ecological importance)	Description of potential effect	Nature of effect	Legislative and planning policy implications (see end of table for abbreviations)	Potential level of effect in the absence of additional mitigation (but including embedded mitigation)
Cefn Park LWS (county importance)	As the LWS is located approximately 830 m south of the development Site, without further mitigation the features for which the LWS is designated, i.e. broadleaved woodland, may be impacted during the construction of Phase 1 and Phase 2 of the development e.g. through the generation of dust or plant movements. These impacts will cease when the construction phase is completed.	Temporary, minor, adverse for both phases	PPW Section 6 Wrexham Local Plan Policy SP14, Policy NE2	Temporary adverse minor at a county scale for both phases **Minor adverse for both phases**
Borras Bog LWS (county importance)	As the LWS is located approximately 1 km north of the Development Site, without further mitigation the features for which the LWS is designated, i.e. acid bog, may be impacted during the construction of Phase 1 and Phase 2 of the development e.g. through the generation of dust or plant movements. These impacts will cease when the construction phase is completed.	Temporary, minor, adverse for both phases	PPW Section 6 Wrexham Local Plan Policy SP14, Policy NE2	Temporary adverse minor at a county scale for both phases **Minor adverse for both phases**
Habitats and flora				
Hedgerows (local importance	The majority of boundary hedgerows will be retained during Phase 1 and Phase 2, however some may be lost to development. Final magnitude of hedgerow loss will be confirmed at the reserve matters application for each phase.	Permanent, minor, adverse for	PPW Section 6 Wrexham Local Plan Policy NE3	Permanent adverse minor at a local scale for both phases

Ecological Receptor (ecological importance)	Description of potential effect	Nature of effect	Legislative and planning policy implications (see end of table for abbreviations)	Potential level of effect in the absence of additional mitigation (but including embedded mitigation)
and Priority Habitat)	Retained hedgerows may be degraded without appropriate protection methods during construction.	both phases	BAP Priority Habitat	**Minor adverse for both phases**
Pond (local importance and Priority Habitat)	Pollution risk during construction of Phase 1 and Phase 2	Temporary, minor, adverse for both phases	PPW Section 6 Wrexham Local Plan Policy SP14 BAP Priority Habitat	Temporary adverse minor at a local scale during both Phases **Minor adverse during both Phases**
Scattered trees (local importance)	The vast majority of boundary trees will be retained during Phase 1 and Phase 2, however some may be lost to development. Final magnitude of tree loss will be confirmed at the reserve matters application for each phase. Retained trees may be degraded without appropriate protection methods during construction.	Permanent, minor, adverse for both phases	PPW Section 6 Wrexham Local Plan Policy NE3	Permanent adverse minor at a local scale for both phases **Minor adverse for both phases**
Semi-natural broadleaved woodland	Woodland will be retained, however may be degraded through construction/storage in the Root Protection Zone (RPZ) or	Temporary, minor, adverse for	PPW Section 6	Temporary adverse minor at a local scale during both Phases

Ecological Receptor (ecological importance)	Description of potential effect	Nature of effect	Legislative and planning policy implications (see end of table for abbreviations)	Potential level of effect in the absence of additional mitigation (but including embedded mitigation)
(local importance)	through pollution of the habitat during construction of both phases.	both phases	Wrexham Local Plan Policy NE3	**Minor adverse during both Phases**
Invasive Plant species (Japanese knotweed)	Risk of causing spread during Phase 1 and Phase 2	Temporary adverse minor during both phases	WCA section 9	Temporary adverse minor at a local scale during both phases **Minor adverse during both phases**
Protected / priority species				
Amphibians (Local importance)	Loss of small areas of optimal amphibian habitat (hedgerows and field margin vegetation) within 250 m of GCN breeding pond in Phase 1 and Phase 2. Loss of large areas of arable land within 250 m of a GCN breeding pond comprising sub-optimal GCN habitat which is not significant for maintaining populations however, GCN may commute across the habitat and its loss may lead to habitat fragmentation. Risk of disturbance / killing / injury GCN and common amphibians during construction in Phase 1 and Phase 2.	Permanent, direct, minor, adverse for both phases	PPW Section 6 Wrexham Local Plan Policy SP14 Wildlife and Countryside Act	Permanent adverse minor at a local scale during both phases **Minor adverse for both phases**

Ecological Receptor (ecological importance)	Description of potential effect	Nature of effect	Legislative and planning policy implications (see end of table for abbreviations)	Potential level of effect in the absence of additional mitigation (but including embedded mitigation)
Badger (Negligible importance)	Of the five badger setts on-site, only one single entrance outlier (Sett 3) will require closure to facilitate the development of Phase 2. No setts require closure to facilitate Phase 1. Permanent loss of foraging habitat in both Phase 1 and 2, through the loss of arable fields. However, habitat is common in the surrounding area and will not be important in maintaining populations.	Negligible	Protection of Badgers Act 1992	**Negligible (but legislative requirement)**
Bats (local importance)	The majority of trees with bat roosting potential in Phase 1 will be retained and protected through development. However, should any of these trees be removed without further mitigation, there would be a risk of disturbance / killing / injury during construction. This is also the case for all trees within Phase 2. Currently, the removal of hedgerows across the Site in Phase 1 and Phase 2 is limited, maintaining good connectivity to commuting and foraging areas within the Site and the wider landscape. However, some areas of hedgerow will be lost in both phases, as well as larger areas of arable land, potentially causing habitat fragmentation. The Site is located within the CSZ of the lesser horseshoe maternity roost located within Erlas Victorian Walled Garden	Permanent direct, minor adverse for both phases	PPW Section 6 Wrexham Local Plan Policy SP14 Wildlife and Countryside Act	Permanent adverse minor at a local scale during both phases **Minor adverse for both phases**

Ecological Receptor (ecological importance)	Description of potential effect	Nature of effect	Legislative and planning policy implications (see end of table for abbreviations)	Potential level of effect in the absence of additional mitigation (but including embedded mitigation)
	estate approximately 260 m north of the Site. As the Site largely provides habitat of low foraging value i.e. arable land, it is assumed the species generally commute east to forage. Furthermore, the Proposed Development details the general retention of the higher value foraging habitats (woodland, pond, hedgerows), with the loss of the arable land. In addition, the roost will not be directly impacted by the works. With only sub-optimal foraging habitat within the CSZ to be lost in Phase 1 and Phase 2.			
Breeding birds (local importance)	Loss of small areas of boundary vegetation comprising hedgerow, scrubby margins and scattered trees suitable for nesting passerine species in both Phase 1 and Phase 2. Loss of arable land supporting three pairs of red listed and species of principal importance breeding lapwing in Phase 1 and Phase 2. Risk of disturbance / killing / injury during construction.	Permanent, direct, minor, adverse for both phases	PPW Section 6 Wrexham Local Plan Policy SP14 Wildlife and Countryside Act	Permanent adverse minor at a local scale during both phases **Minor adverse for both phases**
Hedgehog (local importance)	Removal of small areas of hedgerow and dense ground cover during Phase 1 and Phase 2 could lead to accidental killing / injury, and result in loss/fragmentation of foraging / commuting habitat.	Permanent, direct, minor adverse for	PPW Section 6 Wrexham Local Plan Policy SP14	Permanent adverse minor at the local level for both phases

Ecological Receptor (ecological importance)	Description of potential effect	Nature of effect	Legislative and planning policy implications (see end of table for abbreviations)	Potential level of effect in the absence of additional mitigation (but including embedded mitigation)
		both phases		**Minor adverse for both phases**
Brown hare (Negligible importance but considered during construction)	Loss of suitable habitat for brown hare in Phase 1 and Phase 2, by way of the arable field margins. However, no brown hare ever seen on-site. Therefore, habitats not important for maintaining populations locally.	Negligible	Wildlife and Countryside Act	**Negligible (but legislative requirement)**

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7.80 The potential effects of the Proposed Development on each of the ecological receptors identified are described in **Table 7.11** below. Potential effects assessed are those that could arise from any changed or new effects arising from operation of the development.

Table 7.11 Potential Effects During the Operational Phase

Ecological Receptor (ecological importance)	Description of potential effect	Nature of effect	Legislative and planning policy implications (see end of table for abbreviations)	Potential level of effect in the absence of additional mitigation (but including embedded mitigation)
Statutory / non-statutory nature conservation designations				
Midland Meres and Mosses Phase 2B Ramsar (international importance)	Due to the distance from the Site to the Ramsar, the Ramsar has been scoped out of assessment for air quality pollution impacts during operation, as detailed in the Air Quality report by Miller Goodall (Ref 102716-2), during both phases. The Site lies over 18 km from the nearest publicly accessible part of the Ramsar at Fenns and Wixhall Moss. At this distance it is unlikely that the Proposed Development would generate a significant increase in visitor numbers that could affect the habitats / wildlife for which the Ramsar is designated.	Negligible	PPW Section 6 Wrexham Local Plan Policy SP14, Policy NE1	**Negligible**
River Dee and Bala Lake SAC	Due to the distance from the Site to the SAC, the SAC has been scoped out of assessment for air quality pollution impacts during	Negligible	PPW Section 6	**Negligible**

Ecological Receptor (ecological importance)	Description of potential effect	Nature of effect	Legislative and planning policy implications (see end of table for abbreviations)	Potential level of effect in the absence of additional mitigation (but including embedded mitigation)
(international importance)	operation, as detailed in the Air Quality report by Miller Goodall (Ref 102716-2), during both phases of the development. Due to the distance between the Site to the SAC, water pollution risk during operation is negligible for both phases. This is evidenced in the Hydrology report by Adept (ref ERLP-ACE-XX-XX-RP-C-001). Whilst the nearest publicly accessible section of the river is unknown, the SAC is at a sufficient distance from the Proposed Development (some 5.8 km) to be unaffected by any increases in recreational pressure from Phase 1 or Phase 2 of the Proposed Development.		Wrexham Local Plan Policy SP14, Policy NE1	
Berwyn and South Clwyd Mountains SAC / Berwyn SPA (international importance)	Due to the distance from the Site to the SAC/SPA, the SAC/SPA has been scoped out of assessment for air quality pollution impacts during operation, as detailed in the Air Quality report by Miller Goodall (Ref 102716-2), during both phases of the Proposed Development. The SAC/SPA will contain publicly accessible areas. However, the SPA/SAC is a sufficient distance from, the Proposed Development	Negligible	PPW Section 6 Wrexham Local Plan Policy SP14, Policy NE1	**Negligible**

Ecological Receptor (ecological importance)	Description of potential effect	Nature of effect	Legislative and planning policy implications (see end of table for abbreviations)	Potential level of effect in the absence of additional mitigation (but including embedded mitigation)
	(8.1 km) to be unaffected by any increases in recreational pressure from Phase 1 or Phase 2 of the Proposed Development.			
Cefn Park LWS (county importance)	The LWS is located approximately 830 m south of the development Site, however additional recreational pressure as a result of both Phase 1 and Phase 2 of the Proposed Development on the LWS is not anticipated due to a lack of public access to the LWS. A Public Right of Way (PRoW) the extends round the boundary of Big Wood, but no paths lead through the designated site.	Negligible	PPW Section 6 Wrexham Local Plan Policy SP14, Policy NE2	**Negligible**
Borras Bog LWS (county importance)	The operation of the Site could theoretically increase air pollutant emissions (deposition of NOx for airborne sources) resulting in possible adverse impacts on habitats for which the LWS is designated i.e. acid bog, during the operation of Phase 1 and Phase 2 of the Proposed Development. However, the location of the LWS immediately adjacent to the A5156, means the LWS is already likely to experience some significant effects on habitats as a result of NOx deposition, which is likely to mean the potential impacts from increases in NOx deposition from the Proposed Development are likely to be	(In the absence of modelling the impact is assumed to be) Negligible	PPW Section 6 Wrexham Local Plan Policy SP14, Policy NE2	(In the absence of modelling the impact is assumed to be) **Negligible**

Ecological Receptor (ecological importance)	Description of potential effect	Nature of effect	Legislative and planning policy implications (see end of table for abbreviations)	Potential level of effect in the absence of additional mitigation (but including embedded mitigation)
	negligible. However, as specific modelling of this has not been completed to date, this cannot be confirmed.			
Habitats and flora				
Hedgerows (local importance and Priority Habitat)	Potential degradation of the retained hedgerows due to lack of management during the operation of Phase 1 and Phase 2. If management was amended, hedgerow condition could improve.	Temporary, minor, adverse for both phases	PPW Section 6 Wrexham Local Plan Policy NE3 BAP Priority Habitat	Temporary adverse minor at a local scale for both phases **Minor adverse for both phases**
Pond (local importance and Priority Habitat)	Potential degradation of the retained pond due to lack of management during operation of Phase 1 and Phase 2. If management was amended, pond condition could improve.	Temporary, minor, adverse for both phases	PPW Section 6 Wrexham Local Plan Policy SP14 BAP Priority Habitat	Temporary adverse minor at a local scale during both Phases **Minor adverse during both Phases**

Ecological Receptor (ecological importance)	Description of potential effect	Nature of effect	Legislative and planning policy implications (see end of table for abbreviations)	Potential level of effect in the absence of additional mitigation (but including embedded mitigation)
Scattered trees (local importance)	Potential degradation of the retained scattered trees due to lack of management during the operation of Phase 1 and Phase 2. If management was amended, tree condition could improve.	Temporary, minor, adverse for both phases	PPW Section 6 Wrexham Local Plan Policy NE3	Temporary adverse minor at a local scale for both phases **Minor adverse for both phases**
Semi-natural broadleaved woodland (local importance)	Potential degradation of the woodland due to lack of management during the operation of Phase 1 and Phase 2. If management was amended, woodland condition could improve.	Temporary, minor, adverse for both phases	PPW Section 6 Wrexham Local Plan Policy NE3	Temporary adverse minor at a local scale during both Phases **Minor adverse during both Phases**
Invasive Plant species (Japanese knotweed)	Risk of causing spread during operation Phase 1 and Phase 2 to retained/created habitats.	Temporary adverse minor during both phases	WCA section 9	Temporary adverse minor at a local scale during both phases **Minor adverse during both phases**
Protected / priority species				

Ecological Receptor (ecological importance)	Description of potential effect	Nature of effect	Legislative and planning policy implications (see end of table for abbreviations)	Potential level of effect in the absence of additional mitigation (but including embedded mitigation)
Amphibians (Local importance)	Risk of population decline through disturbance / killing / injury/ habitat fragmentation if retained habitats of use to GCN i.e. pond, hedgerows, woodland are not appropriately managed, including inappropriate lighting, during Phase 1 and Phase 2 of the Proposed Development.	Reversable, direct, minor, adverse for both phases	PPW Section 6 Wrexham Local Plan Policy SP14 Wildlife and Countryside Act	Reversable adverse minor at a local scale during both phases **Minor adverse for both phases**
Badger (Negligible importance)	Potential disturbance/interference with the retained setts by residents. Risk of disturbance / killing / injury/ habitat fragmentation if retained habitats of use to badger i.e. hedgerows and woodland are not appropriately managed, including inappropriate lighting, during Phase 1 and Phase 2 of the Proposed Development.	Negligible	Protection of Badgers Act 1992	**Negligible (but legislative requirement)**
Bats (local importance)	Risk of population decline through disturbance / killing / injury/ habitat fragmentation if retained habitats of use to roosting, foraging and commuting bats i.e. pond, hedgerows, woodland (within CSZ of the lesser horseshoe maternity roost located within Erlas Victorian Walled Garden estate approximately 260 m north of the Site) are not appropriately managed, including	Reversable direct, minor adverse for both phases	PPW Section 6 Wrexham Local Plan Policy SP14 Wildlife and Countryside Act	Reversable adverse minor at a local scale during both phases **Minor adverse for both phases**

Ecological Receptor (ecological importance)	Description of potential effect	Nature of effect	Legislative and planning policy implications (see end of table for abbreviations)	Potential level of effect in the absence of additional mitigation (but including embedded mitigation)
	inappropriate lighting, during Phase 1 and Phase 2 of the Proposed Development.			
Breeding birds (local importance)	Risk of population decline through disturbance / killing / injury if retained habitats of use to breeding birds i.e. scattered trees, hedgerows and woodland are not appropriately managed, including inappropriate lighting, during Phase 1 and Phase 2 of the Proposed Development.	Reversible, direct, minor, adverse for both phases	PPW Section 6 Wrexham Local Plan Policy SP14 Wildlife and Countryside Act	Reversible adverse minor at a local scale during both phases **Minor adverse for both phases**
Hedgehog (local importance)	Risk of population decline through disturbance / killing / injury/ habitat fragmentation if retained habitats of use to hedgehog i.e. pond, hedgerows and woodland are not appropriately managed, including inappropriate lighting, during Phase 1 and Phase 2 of the Proposed Development.	Reversable, direct, minor adverse for both phases	PPW Section 6 Wrexham Local Plan Policy SP14	Reversable adverse minor at the local level for both phases **Minor adverse for both phases**
Brown hare (Negligible importance but considered	No effect	Neutral	Wildlife and Countryside Act	**Negligible**

Ecological Receptor (ecological importance)	Description of potential effect	Nature of effect	Legislative and planning policy implications (see end of table for abbreviations)	Potential level of effect in the absence of additional mitigation (but including embedded mitigation)
during construction)				

Additional Mitigation / Enhancement Measures

Construction

7.81 Additional mitigation measures or enhancement measures recommended during the construction phase for each ecological receptor are detailed in **Table 7.12** below.

Table 7.12 Additional Mitigation During the Construction Phase

Ecological Receptors	Additional Mitigation / Enhancement Measures
Statutory / non-statutory nature conservation designations	
Cefn Park LWS (approximately 830 m south) and Borras Bog LWS (approximately 1 km north)	A Construction Environmental Management Plan (CEMP) should be produced for both Phase 1 and Phase 2 of the Proposed Development, to include standard pollution control measures to protect Cefn Park LWS and Borras Bog LWS during construction.
Habitats and Flora	
Hedgerows, pond, scattered trees and semi-natural broadleaved woodland	A CEMP should be produced for both Phase 1 and Phase 2 of the Proposed Development, to include standard pollution control measures to protect retained habitats during construction. The AIA at **Appendix 7.14** details how retained trees and hedgerows will be protected during construction. Any loss of scattered trees or hedgerows should be replaced within the Site, using native species in ecologically strategic locations. The proposed illustrative masterplan includes creation of green corridors throughout the Site which will be planted with scattered trees. In addition, three ponds are proposed within the site which will provide additional high value habitat to negate any loss or degradation of existing habitats.
Invasive Plant species (Japanese knotweed)	A pre-commencement survey for both Phase 1 and Phase 2 for invasive plant species should be undertaken, with recommendations for the removal of the invasive species from Site prior to the start of works by a specialist contractor.
Protected / priority species	
Amphibians	The CEMP should include Precautionary Working Methods to protect common amphibians during the construction phase,

Ecological Receptors	Additional Mitigation / Enhancement Measures
	including a check for the species group by a Suitably Qualified Ecologist (SQE) during clearance of suitable habitat. A great crested newt licence will be required from Natural Resources Wales to mitigate the loss of GCN terrestrial habitat within 250 m of breeding ponds and reduce the risk of killing/injuring individuals. To acquire a licence, it must be demonstrated that the Favourable Conservation Status of GCN will be maintained (medium-sized metapopulation). Therefore, prior to development of either phases, the specific phase must be enclosed with Temporary Amphibian Fencing (TAF), followed by a 60-day trapping period, moving any GCN or amphibians caught off-site to a receptor area. For Phase 1, this will be the woodland surrounding Pond 6. For phase 2, this could be the southern and eastern SUDS area within Phase 1. The TAF would be maintained and monitored for the duration of the construction period of each phase. As there is no loss of breeding habitat for GCN associated with the development of either phase, there is no recommendation for replacement pond features. However, the proposed southern and eastern SUDS features in Phase 1, could be improved for GCN through appropriate design, with ecologically sensitive planting included in associated with SUDs which, if designed and managed correctly including opportunities for hibernation/refuge, could introduce more suitable terrestrial habitat than is currently present. I To ensure GCN are not dissuaded from commuting around the Site, and to provide a safe commuting route to breeding ponds to the north-east, a green corridor within the Site should be implemented. A lighting Plan should be produced as a planning condition detailing the creation of dark corridors through the Site. Green corridors should link the following suitable terrestrial habitat for GCN; retained hedgerows through and surrounding the Site, the woodland copse and pond, the sports pitches (especially those connecting the woodland copse), the SUDS area in the south and east of the Site and the approximate 20 m sewer easement, which will include ecologically sensitive planting to encourage dispersal to the wider landscape and prevent isolation of the population within pond 6.
Badger	The CEMP should include Precautionary Working Methods to protect badger during the construction phase, including a check for the species by a SQE during clearance of suitable habitat. A pre-commencement survey for badger should also be undertaken for Phase 1 and Phase 2 to ensure no new setts have been constructed.

Ecological Receptors	Additional Mitigation / Enhancement Measures
	No setts will require closure to facilitate Phase 1. One single entrance outlier sett (Sett 3) will require closure in Phase 2, for which a Natural Resources Wales Badger Licence will be required. To ensure badger are not dissuaded from commuting around the Site, or cut off from foraging habitat within/surrounding the Site, a Lighting Plan should be produced detailing the creation of dark corridors through the Site. These dark corridors should include the hedgerows through and surrounding the Site, the retained badger setts, the woodland copse and pond, the sports pitches (especially those connecting the woodland copse and Sett 2), the SUDS area in the south and east of the Site and the approximate 20 m sewer easement, which will include ecologically sensitive planting.
Bats	The AIA at **Appendix 7.14** details that only one tree with bat roosting potential in Phase 1 will require removal, Tree 28, which has Low bat roosting potential. Tree 28 must therefore be section-felled in the presence of a SQE. Should plans for Phase 1 change, and High or Moderate bat roosting potential trees require removal, the trees to be removed must be subject to Aerial Inspections or Nocturnal Surveys. With regards to Phase 2, a PRA (and potential further surveys) will be required for all trees to be lost in Phase 2. The detailed results and mitigation measures resulting from the further surveys and PRA should be detailed as part of the reserved matters application for each phase on the Site. A series of bat boxes should be installed in each phase to mitigate the loss of any potential roost features. The majority of hedgerows will be retained on-site, however the small areas of hedgerow loss should be replaced within the Site, using native species in ecologically strategic locations to improve bat commuting habitat. To ensure bats are not dissuaded from commuting around the Site, or cut off from foraging habitat within/surrounding the Site, a Lighting Plan should be produced detailing the creation of dark corridors through the Site. These dark corridors should include the hedgerows through and surrounding the Site, the retained badger setts, the woodland copse and pond, the sports pitches (especially those connecting the woodland copse), the SUDS area in the east of the Site and the approximate 20 m sewer easement, which will include ecologically sensitive planting. The CEMP should also detail that these areas should be kept as dark areas during construction and include sensitive construction lighting. The Site is located within the CSZ of the lesser horseshoe maternity roost located within Erlas Victorian Walled Garden estate approximately 260 m north of the Site. As the Site largely provides habitat of low foraging value i.e. arable land, it is

Ecological Receptors	Additional Mitigation / Enhancement Measures
	assumed the species generally commute east to forage. The Proposed Development details the general retention of the higher value foraging habitats (woodland, pond, hedgerows), with the loss of the arable land, and as such only sub-optimal foraging habitat within the CSZ to be lost in both Phase 1 and Phase 2. The eastern hedges at the site boundary could be planted to create double hedge line and ensure that there is alighting buffer on the east, this will ensure a good commuting route is maintained. This is deemed sufficient mitigation for both phases.
Breeding birds	Clearance of suitable habitat (trees hedgerows, arable fields) should be timed outside the nesting bird season (generally taken as March to August inclusive, though this is not defined in law and birds may nest outside of this time). If any clearance works to nesting habitats are required during the nesting season, then pre-removal checks for nesting birds must be carried out by a SQE, no more than 48 hours prior to the works commencing. If any nesting birds are found to be present, an appropriate buffer zone will be implemented, within which works are excluded for the duration of the breeding attempt. Any active nests will need to be left in-situ until a SQE confirms that the chicks have fledged and the nest is no longer active. The majority of scattered trees and hedgerows will be retained on-site, however the small areas of loss should be replaced within the Site, using native species in ecologically strategic locations to improve bird nesting habitat. A series of bat boxes should also be included within each Phase to provide further nesting opportunities. The Proposed Development of both phases would result in the loss of habitat which supports up to three pairs of breeding lapwing, loss of suitable arable habitat used by the 3 lapwing territories is unlikely to be significant in maintaining populations locally, as there will be regular changes in farmland use locally. This means the species is unlikely to show specific fidelity to arable habitat within the Site for breeding. In addition, the wider landscape contains large areas of similarly suitable habitat for this species to move into.
Hedgehog	The CEMP should include Precautionary Working Methods to protect hedgehog during the construction phase, including a check for the species by a SQE during clearance of suitable habitat. To ensure hedgehog are not dissuaded from commuting around the Site, or cut off from foraging habitat within/surrounding the Site, a Lighting Plan should be produced detailing the creation of dark corridors through the Site. These dark corridors should include the hedgerows through and surrounding the Site, the

Ecological Receptors	Additional Mitigation / Enhancement Measures
	retained badger setts, the woodland copse and pond, the sports pitches (especially those connecting the woodland copse and Sett 2), the SUDS area in the east of the Site and the approximate 20 m sewer easement, which will include ecologically sensitive planting. "Hedgehog Highways" should also be installed within the Proposed Development to ensure the species can commute through residential gardens. A series of hedgehog houses could also be included.
Brown hare	The CEMP should include Precautionary Working Methods to protect brown hare during the construction phase, including a check for the species by a SQE during clearance of suitable habitat.

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7.82 A suitable Landscape and Ecology Management Plan (LEMP) or Ecological Enhancement Plan should be created to ensure the long-term management of the retained and proposed habitats, including suitable management of the hedgerows, pond, scattered trees and woodland, as well as a strategy to manage the spread of invasive species. The management of these habitats will also consider methods for protecting species that may utilise the habitats such as GCN, badger, bats, breeding birds and hedgehog. It should also include management of species enhancements such as bird and bat boxes, hedgehog houses and the habitat enhancements A LEMP should be provided for each development phase.

Residual Effects

7.83 Residual impacts after mitigation that would result from construction and operation of the Proposed Development are summarised in **Table 7.13** overleaf.

Description of Receptor	**Embedded Mitigation**	**Potential Effect (inc. Significance)**	**Further Mitigation**	Residual Effect (inc. Significance)
Construction				
Midland Meres and Mosses Phase 2B Ramsar (international importance)	None	The Proposed Development is located approximately 2.5 km from the Ramsar, which will avoid the risk of direct habitat loss during construction of both phases. There are no hydrological connections from the Site to the Ramsar. Therefore water pollution risk during construction is negligible for both phases. Due to the distance from the Site to the Ramsar, the Ramsar has been scoped out of assessment for air quality pollution impacts during construction, as detailed in the Air Quality report by Miller Goodall (Ref 102716-2) during both phases. (Negligible)	None required	Negligible
River Dee and Bala Lake SAC (international importance)	None	Development is located approximately 5.8 km from the SAC, which will avoid the risk of direct habitat loss during	None required	Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
		construction of both phases. There are no hydrological connections from the Site to the SAC. Therefore water pollution risk during construction is negligible for both phases. This is evidenced in the Hydrology report by Adept (ref ERPL-ACE-XX-XX-RP-C-001x). Due to the distance from the Site to the SAC, the SAC has been scoped out of assessment for air quality pollution impacts during construction, as detailed in the Air Quality report by Miller Goodall (Ref 102716-2), during both phases. (Negligible)		
Berwyn and South Clwyd Mountains SAC / Berwyn SPA (international importance)	None	Development is located approximately 8.1 km from the SAC/SPA, which will avoid the risk of direct habitat loss during construction of both phases. There are no hydrological connections from the Site to the SAC/SPA. Therefore water pollution risk during construction is negligible for both phases.	None required	Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
		Due to the distance from the Site to the SAC/SPA, the SAC/SPA has been scoped out of assessment for air quality pollution impacts during construction, as detailed in the Air Quality report by Miller Goodall (Ref 102716-2), during both phases. (Negligible)		
Cefn Park LWS (county importance)	None	As the LWS is located approximately 830 m south of the development Site, without further mitigation the features for which the LWS is designated, i.e. broadleaved woodland, may be impacted during the construction of Phase 1 and Phase 2 of the development e.g. through the generation of dust or plant movements. These impacts will cease when the construction phase is completed. (Temporary, minor, adverse for both phases)	A CEMP should be produced for both Phase 1 and Phase 2 of the Proposed Development, to include standard pollution control measures to protect Cefn Park LWS during construction.	Negligible
Borras Bog LWS (county importance)	None	As the LWS is located approximately 1 km north of the Development Site, without further mitigation the features for which the LWS is designated, i.e.	A CEMP should be produced for both Phase 1 and Phase 2 of the Proposed Development, to	Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
		acid bog, may be impacted during the construction of Phase 1 and Phase 2 of the development e.g. through the generation of dust or plant movements. These impacts will cease when the construction phase is completed. (Temporary, minor, adverse for both phases)	include standard pollution control measures to protect Borras Bog LWS during construction.	
Hedgerows (local importance and Priority Habitat)	Current development proposals include the retention of the vast majority of the hedgerows through and surrounding the Site. Please see AIA at **Appendix 7.14**.	The majority of boundary hedgerows will be retained during Phase 1 and Phase 2, however small sections of hedgerow are proposed to be lost to development. Final magnitude of hedgerow loss will be confirmed at the reserve matters application for each phase. Retained hedgerows may be degraded without appropriate protection methods during construction. (Permanent, minor, adverse for both phases)	A CEMP should be produced for both Phase 1 and Phase 2 of the Proposed Development, to include standard pollution control measures to protect retained habitats during construction. The AIA at **Appendix 7.14** details how retained hedgerows will be protected during construction. Any lost lengths of	Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
			hedgerow should be replaced within the Site, using native species in ecologically strategic locations.	
Pond (local importance and Priority Habitat)	Current development proposals include the retention of the on-site pond.	Pollution risk to existing pond during construction of Phase 1 and Phase 2 (Temporary, minor, adverse for both phases)yes	A CEMP should be produced for both Phase 1 and Phase 2 of the Proposed Development, to include standard pollution control measures to protect retained habitats during construction. An additional three ponds (SUDs) are proposed within the illustrative masterplan to provide additional aquatic habitat on Site.	Negligible
Scattered trees (local importance)	Current development proposals include the retention of the vast majority of the	The vast majority of boundary trees will be retained during Phase 1 and Phase 2, however some may be lost to development. Final magnitude of tree loss will be confirmed at the reserve	A CEMP should be produced for both Phase 1 and Phase 2 of the Proposed Development, to include standard	Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
	scattered trees through and surrounding the Site. Please see AIA at **Appendix 7.14**.	matters application for each phase. Retained trees may be degraded without appropriate protection methods during construction. (Permanent, minor, adverse for both phases)	pollution control measures to protect retained habitats during construction. The AIA at **Appendix 7.14** details how retained trees will be protected during construction. Any lost scattered trees should be replaced within the Site, using native species in ecologically strategic locations.	
Semi-natural broadleaved woodland (local importance)	Current development proposals include the complete retention of the on-site woodland copse. Please see AIA at **Appendix 7.14**.	Woodland will be retained, however may be degraded through construction/storage in the RPZ or through pollution of the habitat during construction of both phases. (Temporary, minor, adverse for both phases)	A CEMP should be produced for both Phase 1 and Phase 2 of the Proposed Development, to include standard pollution control measures to protect retained habitats during construction. The AIA at **Appendix 7.14** details how retained trees	Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
			will be protected during construction. Any loss of scattered trees or hedgerows should be replaced within the Site, using native species in ecologically strategic locations.	
Invasive Plant species (Japanese knotweed)	None	Risk of causing spread during Phase 1 and Phase 2 (Temporary adverse minor during both phases)	A pre-commencement survey for both Phase 1 and Phase 2 for invasive plant species should be undertaken, with recommendations for the removal of the invasive species from Site prior to the start of works by a specialist contractor where required.	Negligible
Amphibians (Local importance)	Current development proposals include the retention of the pond used by breeding GCN, as well as the surrounding woodland copse,	Loss of small areas of optimal amphibian habitat (hedgerows and field margin vegetation) within 250 m of GCN breeding pond in Phase 1 and Phase 2. Loss of large areas of arable land within 250 m of a GCN breeding pond	The CEMP should include Precautionary Working Methods to protect common amphibians during the construction phase, including a check for the species group by a	Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
	maintaining breeding habitat within the Site. In addition, the vast majority of the hedgerows will be retained to allow the species to commute through the Site. The sports pitches surrounding the on-site pond and badger Sett 2 on the northern-eastern Site boundary will be retained, allowing continued access to the wider GCN population within the three ponds (Pond 3, Pond 4 and Pond 5) lying to the north of the Site.	comprising sub-optimal GCN habitat which is not significant for maintaining populations however, GCN may commute across the habitat and its loss may lead to habitat fragmentation. Risk of disturbance / killing / injury GCN and common amphibians during construction in Phase 1 and Phase 2. (Permanent, direct, minor, adverse for both phases)	SQE during clearance of suitable habitat. A great crested newt licence will be required from Natural Resources Wales to mitigate the loss of GCN terrestrial habitat within 250 m of breeding ponds and reduce the risk of killing/injuring individuals. The Receptor site for Phase 1 would be the woodland surrounding Pond 6. For phase 2, this could be the southern and eastern SUDS area within Phase 1. The proposed southern and eastern SUDS features in Phase 1, could also be improved for GCN through appropriate design, with ecologically sensitive planting included in associated with the SUDs which, if designed	

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
			and managed correctly including opportunities for hibernation/refuge, could introduce more suitable terrestrial habitat than is currently present. To ensure GCN are not dissuaded from commuting around the Site, and to further breeding ponds to the north-east, a green corridor and a Lighting Plan should be produced detailing the creation of dark corridors through the Site.	
Badger (Negligible importance)	Current development proposals include the retention of four of the five badger setts on-site, including both main setts. One outlier sett will require closure to facilitate	Of the five badger setts on-site, only one single entrance outlier (Sett 3) will require closure to facilitate the development of Phase 2. No setts require closure to facilitate Phase 1. There will be permanent loss of foraging habitat in both Phase 1 and 2, through the loss of arable fields. However, this habitat is common in the	The CEMP should include Precautionary Working Methods to protect badger during the construction phase, including a check for the species by a SQE during	Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
	the development. The proposed retention of the vast majority of the hedgerows and complete retention of the woodland will provide commuting and foraging resources for badger post-development.	surrounding area and will not be important in maintaining populations. (Negligible)	clearance of suitable habitat. A pre-commencement survey for badger should also be undertaken for Phase 1 and Phase 2 to ensure no new setts have been constructed. No setts will require closure to facilitate Phase 1. One single entrance outlier sett (Sett 3) will require closure in Phase 2, for which a Natural Resources Wales Badger Licence will be required. To ensure badger are not dissuaded from commuting around the Site, or cut off from foraging habitat within/surrounding the Site, a Lighting Plan should be produced detailing the creation of dark corridors	

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
			through the Site.	
Bats (local importance)	The retention of the mature scattered trees will provide continued roosting opportunities for bats through development. The retention of the trees, as well as the hedgerows, woodland and pond will also preserve the highest value habitats for foraging and commuting bats on-site.	The majority of trees with bat roosting potential in Phase 1 will be retained and protected through development. However, should any of these trees be removed without further mitigation, there would be a risk of disturbance / killing / injury during construction. This is also the case for all trees within Phase 2. Currently, the removal of hedgerows across the Site in Phase 1 and Phase 2 is limited, maintaining good connectivity to commuting and foraging areas within the Site and the wider landscape. However, some areas of hedgerow will be lost in both phases, as well as larger areas of arable land, potentially causing habitat fragmentation. The Site is located within the CSZ of the lesser horseshoe maternity roost located within Erlas Victorian Walled Garden estate approximately 260 m north of the Site. As the Site largely	The AIA at **Appendix 7.14** details that only one tree with bat roosting potential in Phase 1 will require removal, Tree 28, which has Low bat roosting potential. Tree 28 must therefore be section-felled in the presence of a SQE. Should plans for Phase 1 change, and High or Moderate bat roosting potential trees require removal, the trees to be removed must be subject to Aerial Inspections or Nocturnal Surveys. With regards to Phase 2, a PRA (and potential further surveys) will be required for all trees to be lost in Phase 2. The detailed results and mitigation measures resulting from	Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
		provides habitat of low foraging value i.e. arable land, it is assumed the species generally commute east to forage . Furthermore, the Proposed Development details the general retention of the higher value foraging habitats (woodland, pond, hedgerows), with the loss of the arable land. In addition, the roost will not be directly impacted by the works. With only sub-optimal foraging habitat within the CSZ to be lost in Phase 1 and Phase 2. (Permanent direct, minor adverse for both phases)	the further surveys and PRA should be detailed as part of the reserved matters application for each phase on the Site. A series of bat boxes should be installed in each phase to mitigate the loss of any potential roost features. The majority of hedgerows will be retained on-site, however the small areas of hedgerow loss should be replaced within the Site, using native species in ecologically strategic locations to improve bat commuting habitat. The eastern boundary of the site should have hedgerow planting to enhance the existing hedges, creating a double hedge.	

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
			To ensure bats are not dissuaded from commuting around the Site, or cut off from foraging habitat within/surrounding the Site, a Lighting Plan should be produced detailing the creation of dark corridors through the Site. The CEMP should also detail that these areas should be kept as dark areas during construction and include sensitive construction lighting. The Site is located within the CSZ of the lesser horseshoe maternity roost located within Erlas Victorian Walled Garden estate approximately 260 m north of the Site. As the Site largely provides habitat of low foraging value i.e. arable land, it is	

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
			assumed the species generally commute east to forage. The Proposed Development details the general retention of the higher value foraging habitats (woodland, pond, hedgerows), with the loss of the arable land, and as such only sub-optimal foraging habitat within the CSZ is to be lost in both Phase 1 and Phase 2. To mitigation this loss of sub-optimal foraging habitat, the southern and eastern SUDS area in Phase 1 with be planted sensitively for ecology, and maintained as a dark area, to provide higher value foraging habitat within the CSZ then is currently present. This is deemed sufficient mitigation for both phases.	
Breeding birds (local importance)	The general retention of the woodland, scattered	Loss of small areas of boundary vegetation comprising hedgerow,	Clearance of suitable habitat (trees hedgerows, arable fields) should be	Minor adverse

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
	trees and hedgerows will preserve nesting habitat for passerine species within the Site. The amenity grassland pitches important locally for foraging starling and thrushes will also be retained.	scrubby margins and scattered trees suitable for nesting passerine species in both Phase 1 and Phase 2. Loss of arable land supporting three pairs of red listed breeding lapwing in Phase 1 and Phase 2. Loss of habitat including arable land with associated field margins and higher levels of disturbance due to increased human population around retained woodland, pond and amenity habitat resulting in reduced opportunities for foraging and roosting barn owl. Risk of disturbance / killing / injury during construction. (Permanent, direct, minor, adverse for both phases)	timed outside the nesting bird season (generally taken as March to August inclusive). If any clearance works to nesting habitats are required during the nesting season, then pre-removal checks for nesting birds must be carried out by a SQE, no more than 48 hours prior to the works commencing. The majority of scattered trees and hedgerows will be retained on-site, however the small areas of loss should be replaced within the Site, using native species in ecologically strategic locations to improve bird nesting habitat. A series of bat boxes should also be included within each	

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
			Phase to provide further nesting opportunities. The Proposed Development of both phases would result in the loss of habitat which supports up to three pairs of breeding lapwing, loss of suitable arable habitat used by the 3 lapwing territories is unlikely to be significant in maintaining populations locally, as there will be regular changes in farmland use locally. This means the species is unlikely to show specific fidelity to arable habitat within the Site for breeding. In addition, the wider landscape contains large areas of similarly suitable habitat for this species to move into. However, mitigation will also be provided on-site in the southern and eastern SUDS area of Phase 1,	

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
			which will be planted and managed to consider nesting lapwing, and in turn also benefit a wide range of other bird species should the SUDS features also be ecologically designed. This area is deemed sufficient mitigation or both phases.	
Hedgehog (local importance)	The general retention of the woodland and hedgerows will provide foraging and commuting habitat for hedgehog post development.	Removal of small areas of hedgerow and dense ground cover during Phase 1 and Phase 2 could lead to accidental killing / injury, and result in loss/fragmentation of foraging / commuting habitat. (Permanent, direct, minor adverse for both phases)	The CEMP should include Precautionary Working Methods to protect hedgehog during the construction phase, including a check for the species by a SQE during clearance of suitable habitat. To ensure hedgehog are not dissuaded from commuting around the Site, or cut off from foraging habitat within/surrounding the Site, a Lighting Plan should be produced detailing the	Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
			creation of dark corridors through the Site. "Hedgehog Highways" should also be installed within the Proposed Development to ensure the species can commute through residential gardens. A series of hedgehog houses could also be included.	
Brown hare (Negligible importance but considered during construction)	None	Loss of suitable habitat for brown hare in Phase 1 and Phase 2, by way of the arable field margins. However, no brown hare ever seen on-site. Therefore habitats not important for maintaining populations locally. (Negligible)	The CEMP should include Precautionary Working Methods to protect brown hare during the construction phase, including a check for the species by a SQE during clearance of suitable habitat.	Neutral
Operation				
Midland Meres and Mosses Phase 2B Ramsar (international importance)	None	Due to the distance from the Site to the Ramsar, the Ramsar has been scoped out of assessment for air quality pollution impacts during operation, as detailed in the Air	None required	Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
		Quality report by Miller Goodall (Ref 102716-2), during both phases. The Site lies over 18 km from the nearest publicly accessible part of the Ramsar at Fenns and Wixhall Moss. At this distance it is unlikely that the Proposed Development would generate a significant increase in visitor numbers that could affect the habitats / wildlife for which the Ramsar is designated. (Negligible)		
River Dee and Bala Lake SAC (international importance)	None	Due to the distance from the Site to the SAC, the SAC has been scoped out of assessment for air quality pollution impacts during operation, as detailed in the Air Quality report by Miller Goodall (Ref 102716-2), during both phases of the development. Due to the distance between the Site to the SAC, water pollution risk during operation is negligible for both phases. This is evidenced in the Hydrology report by Adept (ref ERRLP-ACE-XX-XX-RP-C_001).	None required	Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
		Whilst the nearest publicly accessible section of the river is unknown, the SAC is at a sufficient distance from the Proposed Development (some 5.8 km) to be unaffected by any increases in recreational pressure from Phase 1 or Phase 2 of the Proposed Development. (Negligible)		
Berwyn and South Clwyd Mountains SAC / Berwyn SPA (international importance)	None	Due to the distance from the Site to the SAC/SPA, the SAC/SPA has been scoped out of assessment for air quality pollution impacts during operation, as detailed in the Air Quality report by Miller Goodall (Ref 102716-2), during both phases of the Proposed Development. The SAC/SPA will contain publicly accessible areas. However, the SPA/SAC is a sufficient distance from, the Proposed Development (8.1 km) to be unaffected by any increases in recreational pressure from Phase 1 or Phase 2 of the Proposed Development. (Negligible)	None required	Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
Cefn Park LWS (county importance)	None	The LWS is located approximately 830 m south of the development Site, however additional recreational pressure as a result of both Phase 1 and Phase 2 of the Proposed Development on the LWS is not anticipated due to a lack of public access to the LWS. A Public Right of Way (PRoW) the extends round the boundary of Big Wood, but no paths lead through the designated site. (Negligible)	None required	Negligible
Borras Bog LWS (county importance)	None	The operation of the Site, could theoretically increase air pollutant emissions (deposition of NOx for airborne sources) resulting in possible adverse impacts on habitats for which the LWS is designated i.e. acid bog, during the operation of Phase 1 and Phase 2 of the Proposed Development. However, the location of the LWS immediately adjacent to the A5156, means the LWS is already likely to experience some significant effects on habitats as a result of NOx deposition,	None proposed	In the absence of modelling the effect is assumed to be Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
		which is likely to mean the potential impacts from increases in NOx deposition from the Proposed Development are likely to be negligible. However, as specific modelling of this has not been completed to date, this cannot be confirmed. In the absence of modelling the effect is assumed to be (Negligible)		
Hedgerows (local importance and Priority Habitat)	None	Potential degradation of the retained hedgerows due to lack of management during the operation of Phase 1 and Phase 2. If management was amended, hedgerow condition could improve. (Temporary, minor, adverse for both phases)	A suitable LEMP or Ecological Enhancement Plan should be created to ensure the long-term management of the retained and proposed habitats, including suitable management of the hedgerows. A LEMP should be provided for each development phase. The LEMP will also outline best practice in relation to the planting and establishment of new hedgerows to be planted on Site.	Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
Pond (local importance and Priority Habitat)	None	Potential degradation of the retained pond due to lack of management during operation of Phase 1 and Phase 2. If management was amended, pond condition could improve. (Temporary, minor, adverse for both phases)	A suitable LEMP or Ecological Enhancement Plan should be created to ensure the long-term management of the retained and proposed habitats, including suitable management of the on site pond. A LEMP should be provided for each development phase. Three SUDs are proposed to be created on Site which provides additional aquatic habitat.	Negligible
Scattered trees (local importance)	None	Potential degradation of the retained scattered trees due to lack of management during the operation of Phase 1 and Phase 2. If management was amended, tree condition could improve. (Temporary, minor, adverse for both phases)	A suitable LEMP or Ecological Enhancement Plan should be created to ensure the long-term management of the retained and proposed habitats, including suitable management of the existing scattered trees which will outline best practice in planting and establishing proposed scattered trees. A LEMP should be provided for	Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
			each development phase.	
Semi-natural broadleaved woodland (local importance)	None	Potential degradation of the woodland due to lack of management during the operation of Phase 1 and Phase 2. If management was amended, woodland condition could improve. (Temporary, minor, adverse for both phases)	A suitable LEMP or Ecological Enhancement Plan should be created to ensure the long-term management of the retained and proposed habitats, including suitable management of the woodland on site which will ensure a suitable buffer zone is implemented. A LEMP should be provided for each development phase.	Negligible
Invasive Plant species (Japanese knotweed)	None	Risk of causing spread during operation Phase 1 and Phase 2 to retained/created habitats. (Temporary adverse minor during both phases)	A suitable LEMP or Ecological Enhancement Plan should be created to ensure the long-term management of the retained and proposed habitats, including a strategy to remove and manage the spread of invasive species. A LEMP should be provided for each development phase.	Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
Amphibians (Local importance)	None	Risk of population decline through disturbance / killing / injury/ habitat fragmentation if retained habitats of use to GCN i.e. pond, hedgerows, woodland are not appropriately managed, including inappropriate lighting, during Phase 1 and Phase 2 of the Proposed Development. (Reversable, direct, minor, adverse for both phases)	A suitable LEMP or Ecological Enhancement Plan should be created to ensure the long-term management of the retained and proposed habitats, including suitable management of the hedgerows, pond, scattered trees and woodland. The management of these habitats will also consider methods for protecting species that may utilise the habitats such as GCN. It should also include management of species specific enhancements such as the creation of SUDS area in Phase 1. A LEMP should be provided for each development phase.	Minor beneficial
Badger (Negligible importance)	The indicative road layout as shown in the Parameter Plan at **Appendix 7.16,** details how the	Potential disturbance /interference with the retained setts by residents. Risk of disturbance / killing / injury/	A suitable LEMP or Ecological Enhancement Plan should be created to ensure the long-term management of the	Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
	larger road within the development will be located away from the retained badger setts. This will aid in the reduction of potential disturbance to the species and likelihood of road collisions.	habitat fragmentation if retained habitats of use to badger i.e. hedgerows and woodland are not appropriately managed, including inappropriate lighting, during Phase 1 and Phase 2 of the Proposed Development. (Negligible)	retained and proposed habitats, including suitable management of the hedgerows, pond, scattered trees and woodland. The management of these habitats will also consider methods for protecting species that may utilise the habitats such as badger. It should also include management of species enhancements such as habitat creation and green corridors including the proposed southern and eastern SUDs area. A LEMP should be provided for each development phase.	
Bats (local importance)	None	Risk of population decline through disturbance / killing / injury/ habitat fragmentation if retained habitats of use to roosting, foraging and commuting bats i.e. pond, hedgerows, woodland (within CSZ of the lesser horseshoe maternity roost located within Erlas Victorian Walled Garden	A suitable LEMP or Ecological Enhancement Plan should be created to ensure the long-term management of the retained and proposed habitats, including suitable management of the	Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
		estate approximately 260 m north of the Site) are not appropriately managed, including inappropriate lighting, during Phase 1 and Phase 2 of the Proposed Development. (Reversable direct, minor adverse for both phases)	hedgerows, pond, scattered trees and woodland. The management of these habitats will also consider methods for protecting species that may utilise the habitats such as bats. It should also include management of species enhancements such as and the provision of bat boxes and the habitat enhancements provided in the southern and eastern SUDS area in Phase 1 and within the 20sewer easement running north to south through the Site. A LEMP should be provided for each development phase.	
Breeding birds (local importance)	None	Risk of population decline through disturbance / killing / injury if retained habitats of use to breeding birds i.e. scattered trees, hedgerows and woodland are not appropriately managed, including inappropriate lighting, during Phase 1 and Phase 2 of	A suitable LEMP or Ecological Enhancement Plan should be created to ensure the long-term management of the retained and proposed habitats, including suitable	Minor adverse

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
		the Proposed Development. (Reversible, direct, minor, adverse for both phases)	management of the hedgerows, pond, scattered trees and woodland. The management of these habitats will also consider methods for protecting species that may utilise the habitats such as breeding birds. It should also include management of species enhancements such as bird boxes and the habitat enhancements provided in the southern and eastern SUDS area in Phase 1 and within the green corridor running north to south through the Site. A LEMP should be provided for each development phase. Loss of habitat for arable bird species (lapwing) not compensated	
Hedgehog (local importance)	None	Risk of population decline through disturbance / killing / injury/ habitat fragmentation if retained habitats of use to hedgehog i.e. pond, hedgerows	A suitable LEMP or Ecological Enhancement Plan should be created to ensure the long-term	Negligible

Description of Receptor	**Embedded Mitigation**	**Potential Effect (inc. Significance)**	**Further Mitigation**	Residual Effect (inc. Significance)
		and woodland are not appropriately managed, including inappropriate lighting, during Phase 1 and Phase 2 of the Proposed Development. (Reversable, direct, minor adverse for both phases)	management of the retained and proposed habitats, including suitable management of the hedgerows, pond, scattered trees and woodland. The management of these habitats will also consider methods for protecting species that may utilise the habitats such as hedgehog. It should also include management of species enhancements such as hedgehog houses and the habitat enhancements. In addition hedgehog corridors between gardens should be implemented to allow the species to commute freely around the Site. A LEMP should be provided for each development phase.	
Brown hare (Negligible importance but considered during	None	No effect (Neutral)	None required	Negligible

Description of Receptor	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
construction)				

Table 7.13 Residual Effects Summary

7.84 Potential significant effects arising due to the Proposed Development include:

- Permanent minor negative effect due to the construction of Phase 1 and Phase 2 on nesting bird species.
- Permanent minor negative effect due to the operation of Phase 1 and Phase 2 on nesting bird species.
- Permanent, minor beneficial effect due to the operation of Phase 1 and Phase 2 on amphibians.

Conclusions

7.85 The potential effects of the Proposed Development have been assessed through the completion of an Ecological Impact Assessment, the finding of which have been set out in this Ecology chapter for the Environmental Statement. The key findings are summarised below:

Statutory and non-statutory Nature Conservation Designations

7.86 A total of 4 statutory and 3 non-statutory nature conservation sites were noted within the Zone of Influence around the Proposed Development, the closest of which being Cefn Park Local Wildlife Site (LWS) located some 830 m south-east of the Site. An assessment relating to potential construction phase impacts on this and the other statutory sites and non-statutory sites identified that potential construction phase impacts could be mitigated through the production and implementation of a CEMP for the Site.

7.87 Potential effects on sensitive acid bog habitat occurring at Borras Bog LWS located approximately 1 km to the north of the Site, potentially arising from a possible increase the deposition of airborne sources of nitrogen N0x have been assessed as likely being negligible. This is a result of the existing impact of the neighbouring A5156. However, this cannot be confirmed as it has not been specifically assessed to date. Impacts to other nature conservation designations containing nitrogen vulnerable habitats have been scoped out of the Air Quality assessment also undertaken for this EIA.

Habitats

7.88 None of the habitats within the Site were considered to be of greater than local ecological importance, of these hedgerows, ponds and broadleaved woodland are considered to be habitats of conservation concern under national or local biodiversity action. The pond, woodland and majority of the hedgerows, as well as the majority of the scattered trees will be retained through development.

7.89 The majority of habitat loss relates to arable land of negligible ecological importance, with some smaller scale losses of hedgerow sections and boundary trees for access. Habitat losses are to be mitigated through the creation of new habitats which will be included within the landscape design of the development. Retained habitat features would be protected during the construction phase through implementation of a

CEMP, which will identify buffer zones for the protection of habitats, and well as pollution prevention measures.

7.90 Both retained and newly created habitats would be the subject of a Landscape and Ecological Management Plan (LEMP) which will ensure habitats are managed and protected from incidental disturbance and habitat degradation due to lack of maintenance during operation of the Proposed Development.

Protected and Notable Species

7.91 Potential effects relating to protected/notable species from development of the Site comprise:

- Loss of terrestrial habitat and dispersal opportunities for GCN and other amphibians, further details of mitigation for habitat loss and to avoid killing / injury of GCN during the construction phase will need to be provided and covered by an application for an EPS licence from NRW;
- Potential disturbance to commuting / foraging routes for bats would be mitigated through provision of new hedgerows which will link to other features such as woodland and hedgerows beyond the Site boundary, as well as ecologically sensitive planting provided around the SUDS in the south and east and along the 20 m sewer easement running through the centre of the Site, to be kept as dark areas to promote their use by foraging and commuting bats. A series of bat boxes on retained trees will also be provided, together with a sensitive lighting strategy to maintain dark corridors with and surrounding the Site, improving habitat resources for bats locally. No loss of roost locations is predicted;
- The provision of green infrastructure will maintain habitat resources for birds consisting of common woodland passerine species. Loss of potential nesting resources for lapwing arising as a result in the loss of arable land is not deemed to be significant, with further suitable habitat present in the surrounding area;
- A NRW badger licence will be required to close one outlier sett within the Site. All other setts, including two main setts on-site will be retained, protecting badger through development;
- During operation of the Proposed Development, implementation of the LEMP will ensure habitats for protected species are maintained; and
- Measures to prevent damage / disturbance to breeding birds, hedgehog and brown hare would also be set out in the CEMP.

Assessment of Cumulative Effects

7.93 RJK Consulting Ltd have undertaken a Cumulative Schemes search for planning applications within the vicinity of the Site which have the potential to result in cumulative impacts. Other than the original application and subsequent pending appeal for Land South of Holt Road, Wrexham (KSS2 North), no other cumulative sites have been identified. **Table 7.14** provides details of the Land South of Holt Road, Wrexham (KSS2 North) application.

Approach

7.94 A review on the potential ecological effects airing from the Proposed Development on each of the receptors identified by the EcIA for this ES chapter to determine whether any in combination effects would be likely to either:

A) Increase the significance of effects identified for each receptor when considered cumulatively; or

B) Raise the effect on a given receptor above negligible when considered cumulatively.

7.95 Where potential effects on receptors have been identified as neutral these have been scoped out of the Assessment of Cumulative Effects as there would be no additive effects arising from the Proposed Development.

Table 7.14 Cumulative Sites

Site Ref.	Application No.	Distance and Direction	Proposal	Scoped-in / Scoped-out	Justification
1.	P/2021/0436 (original application reference) currently subject to a pending appeal (P/2021/0436)	Approx 250 m north	Land South of Holt Road, Wrexham (KSS2 North) 'Outline application for construction of up to 600 dwellings, with social landscaping, public open space and on-site establishment, with all matters retained except for north Site access'	In	Sufficiently close to Site and designated sites to result in cumulative construction and operational effects, along with impacts on the dispersal of fauna around the landscape.

Likely Residual Cumulative Effects and their Significance

Construction

7.96 Land South of Holt Road, Wrexham (KSS2 North) is located in close proximity to the Development Site (approximately 255 m). As such, should a CEMP be implemented during the construction phase for KSS2 North, then all designated sites will either be adequately protected, or located a sufficient distance from KSS2 North, for the anticipated effects during the construction phase to be negligible. Therefore, there will also be negligible cumulative effects on designated sites during the construction phase in combination with the Proposed Development.

7.97 Similarly for habitats should a CEMP and an AIA be adhered to for KSS2 North, negligible cumulative impacts on habitats are anticipated. The Site is also largely agricultural land of limited ecological importance.

7.98 Due to the presence of a pond within the KSS2 North red line boundary, and the location of KSS2 North within the CSZ of the known lesser horseshoe maternity roost located within Erlas Victorian Walled Garden estate (without knowledge of confirmed mitigation), there may be a minor adverse effect on bats and GCN during the construction phase of KSS2 North. However, due to the likely implementation of mitigation at KSS2 North for these species, and as the Proposed Development will result in a permanent minor beneficial effect for both species during construction, due to habitat creation, overall the cumulative effect of KSS2 North in combination with the Proposed Development on protected species during construction would likely be negligible.

The Completed and Operational Development

7.99 Due to the distance to the designated sites, or lack of public access, negligible cumulative effects during operation are anticipated as a results KSS2 North in combination with the Proposed Development. However, Borras Bog LWS located some 1 km north of the Site supports nitrogen sensitive habitats. Although, the location of the LWS immediately adjacent to the A5156, means habitats within the LWS are already likely to experience some effects as a result of NOx deposition. This close proximity to an existing main road is likely to mean any additive effects arising as a result in traffic volumes locally as a result of the Proposed Development is negligible. It is also probable that the same argument would apply in respect of the operation of KSS2 North, meaning that the cumulative impact form both developments would be negligible. However, without specific modelling this cannot be confirmed.

7.100 Should a LEMP be provided for KSS2 North, no cumulative effects are anticipated in combination with the Proposed Development on habitats during operation.

7.101 The cumulative effect of KSS2 North, in combination with the Proposed Development, for the operational phase on protected species are the same as described above for the construction phase i.e. negligible (assuming appropriate mitigation will also be implemented in respect of KSS2 North).