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5 BIODIVERSITY

5.1 Introduction

5.1.1 This chapter reports the outcome of the assessment of likely significant effects arising from the Proposed Development upon ecology and biodiversity during construction and operation.

5.1.2 The chapter also identifies, where appropriate, proposed mitigation measures to prevent, minimise or control likely adverse effects on the ecology and biodiversity of the Wider Site, as defined below, due to the Proposed Development and the subsequent anticipated residual effects.

5.1.3 This chapter (and its associated figures and appendices) is intended to be read as part of the wider draft Environmental Statement, with particular reference to **Volume 4, Technical Appendix 5.1, Volume 4, Technical Appendix 5.2** and **Volume 4, Technical Appendix 5.3**. This chapter has been informed by the Green Infrastructure Statement; a standalone technical report, submitted as part of the DNS planning application for the Proposed Development.

5.2 Consultation, scope and Study Area

Consultation undertaken to date

5.2.1 Consultation was undertaken during the development design, pre-application and EIA scoping exercise with Natural Resources Wales and Flintshire County Council.

5.2.2 **Table 5.1** provides a summary of the consultation activities undertaken in support of the preparation of this assessment.

Table 5.1 Summary of consultation undertaken

Consultee	Key matters raised	Actions in response to consultee comments
Natural Resources Wales	• There was a high risk to great crested newts *Triturus cristatus* from ground investigation works and that the works would need to be covered by a licence rather than being undertaken using a non-licensed method statement; • It may be appropriate to modify the existing licence to cover these works rather than applying for a separate licence; and • Natural Resources Wales would accept existing great crested	The consultation highlighted the need for great crested newts to be considered an important receptor at all stages of the Proposed Development, including preliminary and pre-construction activities. This has been incorporated into the assessment within this chapter and has helped to inform likely mitigation measures.

Consultee	Key matters raised	Actions in response to consultee comments
	newt survey and monitoring data associated with the active licence to support this licence modification negating the need for further surveys at this stage.	
Natural Resources Wales	• Natural Resources Wales confirmed that two European protected species (EPS) licenses will be required: one new licence and an amendment to the existing licence. The new EPS licence is required for translocation of great crested newts and the existing EPS licence needs to be amended to allow for conversion of existing habitat (construction of new ponds). • The new EPS license will not be obtained until the DNS decision is released and conditions provided. The new EPS license must have the DNS consent referenced. The application to amend the existing licence was commenced in early 2024, in advance of application submission so that the new mitigation can be created and allowed time to establish ahead of translocation under the new licence.	As requested, the Applicant will prepare two separate EPS licence proposals and begin the preparation and consultation on the proposals with Natural Resources Wales and Flintshire County Council prior to the finalisation of the DNS consents. The application to amend the existing licence will be completed prior to application submission to allow work on creating new habitat to begin as soon as possible. The new licence application for translocation will be completed post-DNS consent.
Flintshire County Council & Natural Resources Wales	• Would there be a requirement for Biodiversity Net Benefit calculations to compensate for the loss of habitats as a result of the Proposed Development. What are the required principles of biodiversity mitigation and compensation.	Biodiversity net benefit calculations are not required, however habitats lost will be compensated for on a like-for-like basis within a Landscape and Biodiversity Mitigation Area. This area will also be used to create four new ponds as well as higher value grassland and woodland and managed to benefit great crested newts and biodiversity as a whole. The key principles of mitigation and compensation should

Consultee	Key matters raised	Actions in response to consultee comments
		be to enhance the Site for great crested newts and maintain connectivity to the wider landscape.

Scope of the assessment

5.2.3 The scope of this assessment has been established through an ongoing scoping process. Further information can be found in **Volume 2, Chapter 4: Approach to EIA**.

Insignificant Effects

5.2.4 Based on desk and field assessments, a selection of habitats and species have been scoped out of this Ecological Impact Assessment (EcIA) where it is deemed unlikely that significant effects would result from the Proposed Development**. Table 5.2** presents the receptors/matters that are scoped out of further assessment, together with appropriate justification. Where a change has occurred since EIA scoping, this is clearly stated and justified.

Table 5.2 Receptor/matters scoped out of further assessment

Receptor/matter	Phase	Justification	Change since EIA Scoping?
Statutory designated sites	Construction & operation	Designated sites are proposed to be scoped out due to their distance from the Site boundary and a lack of relevant links or impact pathways. A Habitats Regulations Assessment Stage 1 screening assessment[1] has been prepared (as provided in **Volume 4, Technical Appendix 5.3**) to discuss any likely significant effects on Deeside and Buckley Newt Sites Special Area of Conservation (SAC).	No. The Scoping Direction agreed that this receptor/matter should be scoped out of further assessment. It should be noted the Proposed Development no longer encompasses the CO_2 pipeline within its scope, and as such no effects on Deeside and Buckley Newt Sites SAC are anticipated.
Non-statutory designated sites	Construction & operation	Due to the distance of the Wider Site from the designated sites and	No. The Scoping Direction agreed that this receptor/matter

[1] RSK Biocensus (2024). *Padeswood Habitat Regulations Assessment*

Receptor/matter	Phase	Justification	Change since EIA Scoping?
		lack of relevant links or impact pathways.	should be scoped out of further assessment.
Hedgerows	Construction & operation	All hedgerows have been assessed as 'not important' under the Hedgerow Regulations. Mitigation for habitat loss will include the implementation of a Habitat Creation and Management Plan (HCMP) (provided as part of this DNS planning application) that will include measures to sufficiently compensate for habitat loss.	No. The Scoping Direction agreed that this receptor/matter should be scoped out of further assessment.
Ponds	Construction & operation	All ponds originally scoped out. Two ponds to the southwest of the Site (Pond 10 and Pond 11), shown in **Volume 4, Technical Appendix 5.2, Figure 10**, will now be converted to a stormwater holding pond. No other ponds will be lost. The implementation of a Habitat Creation and Management Plan will include standard practice pollution prevention measures. Replacement ponds will be created as part of the great crested newt licence.	Yes. The Scoping Direction agreed that this receptor/matter should be scoped out of further assessment on the basis that no ponds will be lost, but changes to design following the Scoping Direction have now resulted in the conversion of Pond 10 and Pond 11. Ponds 10 and 11 have previously contained a population of great crested newts. Ponds remain scoped out, with the exception of Pond 10 and 11, which are scoped in as part of the assessment of

Receptor/matter	Phase	Justification	Change since EIA Scoping?
			great crested newt (see **Table 5.3**).
Neutral grassland	Construction & operation	The implementation of a HCMP that will include measures to sufficiently compensate for habitat loss and to protect any retained areas of this habitat during construction.	No. The Scoping Direction agreed that this receptor/matter should be scoped out of further assessment.
Poor Semi-improved grassland	Construction & operation	This habitat is outside of the Proposed Works Areas and therefore will not be impacted by the Proposed Development.	No. The Scoping Direction agreed that this receptor/matter should be scoped out of further assessment.
Invasive species	Construction & operation	Cotoneaster species were recorded within the Wider Site but will not be affected by the works. Virginia-creeper is present on a building due to be demolished. An invasive species method statement will be implemented to prevent the spread of this species during construction. No residual likely significant effects.	No. The Scoping Direction agreed that this receptor/matter should be scoped out of further assessment.
Invertebrates	Construction & operation	Due to a lack of records of Schedule 5 species and a lack of high quality habitat that could support an important invertebrate assemblage.	No. The Scoping Direction agreed that this receptor/matter should be scoped out of further assessment.
Reptiles	Construction & operation	No reptiles recorded during surveys, assumed absent from the Site. Precautionary measures detailed in an HCMP will safeguard low numbers of reptiles that commute onto the	No. The Scoping Direction agreed that this receptor/matter should be scoped out of further assessment.

Receptor/matter	Phase	Justification	Change since EIA Scoping?
		Site from the surrounding landscape.	
Common nesting birds	Construction & operation	Implementation of precautionary measures detailed in an HCMP will sufficiently safeguard nests during construction. No effects during operation.	No. The Scoping Direction agreed that this receptor/matter should be scoped out of further assessment.
Barn owl	Construction and operation	Nest box underneath the footprint of the Post Combustion Carbon Capture and Compression plant (PCCCC). If occupied, barn owl may be disturbed by construction. The implementation of an HCMP will include sufficient measures to compensate for loss of foraging habitat, which will be replaced with habitat to be managed primarily for the benefit of great crested newt, which will therefore be of a higher quality for barn owl to use than is currently present in the Site boundary. No effects during operation.	Yes. The Scoping Direction did not agree with scoping barn owl out of the assessment until further inspection of the nest box could be completed and more information could be provided. Since EIA scoping, a check of the box by a licensed ecologist was undertaken and the box showed no sign of use. The box has been removed and new boxes erected in the south west of the Wider Site, outside of the anticipated impact zone of the proposed works. Therefore, barn owl remains scoped out.
Peregrine	Construction & operation	Peregrine nest on a building in the centre of the existing cement works. No effects anticipated during construction or operation. The implementation of an HCMP will include sufficient measures to	Yes. The Scoping Direction did not agree with scoping peregrine out of the assessment until further information could be provided. The breeding bird surveys revealed the location of the

Receptor/matter	Phase	Justification	Change since EIA Scoping?
		compensate for loss of foraging habitat, which will be replaced by higher quality habitat managed for great crested newts (as described above for barn owl).	peregrine nest is circa. 50m from the Proposed Works Areas, separated by the main thoroughfare currently used by HGVs and LGVs entering and leaving existing cement works. With the location of the nest being relatively high up on an existing building, disturbance is not anticipated, particularly given the nest is already in use whilst surrounded by current levels of operational activity within the cement works. Therefore, peregrine remains scoped out.
Foraging and commuting bats	Construction & operation	Lighting strategy as part of an HCMP will minimise effects on foraging and commuting bats during construction and operation.	No. The Scoping Direction agreed that this receptor/matter should be scoped out of further assessment.
Hazel dormouse	Construction & operation	Due to a lack of records and lack of suitable habitat.	No. The Scoping Direction agreed that this receptor/matter should be scoped out of further assessment.
Water vole	Construction & operation	No ponds or watercourses will be lost. The implementation of an HCMP will include standard practice pollution prevention measures. No field signs were recorded during surveys and the	No. The Scoping Direction agreed that this receptor/matter should be scoped out of further assessment.

Receptor/matter	Phase	Justification	Change since EIA Scoping?
		watercourses are unlikely to support individuals commuting from off-site.	
Otter	Construction & operation	Due to a lack of suitable habitat, the watercourses being unsuitable to allow individuals to commute from off-site, and an absence of field signs during the water vole surveys.	No. The Scoping Direction agreed that this receptor/matter should be scoped out of further assessment.
Other species of principal importance	Construction & operation	The implementation of precautionary measures detailed in an HCMP will mitigate for any effects.	No. The Scoping Direction agreed that this receptor/matter should be scoped out of further assessment.

Likely significant effects

5.2.5 The habitats and protected species considered within this EcIA for assessment of likely significant effects from the Proposed Development are provided in **Table 5.3.** This presents the receptors/matters that are scoped into further assessment, together with appropriate justification. Where a change has occurred since EIA scoping, this is clearly stated and justified.

Table 5.3 Receptor/matters scoped in to further assessment

Receptor/matter	Phase	Justification	Change since EIA Scoping?
All other natural habitats	Operation	The implementation of an HCMP will include sufficient measures to compensate for habitat loss and to protect retained habitats during construction. Sensitive habitats may be significantly affected by nitrogen deposition during operation. This factor has been scoped into the Air Quality assessment as having likely significant effects.	No. The Scoping Direction agreed that this receptor/matter should be scoped into further assessment.

Receptor/matter	Phase	Justification	Change since EIA Scoping?
Great crested newt	Construction	Great crested newts known to be present across the Site. Construction works present a high risk and mitigation licence will be required. As the mitigation to be licensed is currently unknown there are likely significant effects. In addition, a change to the design of the Proposed Development means Pond 10 and Pond 11, which contain a medium population of great crested newts, will be lost. Pond 10 and Pond 11 will be replaced by a stormwater holding pond which is unlikely to be suitable for great crested newts. They will be replaced on a two for one basis, as per Great Crested Newt Mitigation Guidelines (English Nature, 2001)[2] in the Landscape and Biodiversity Mitigation Areas which is found in the north eastern corner of the Site where four ponds will be created with additional hibernacula and log piles.	No. The Scoping Direction agreed that this receptor/matter should be scoped into further assessment.

[2] https://cieem.net/resource/great-crested-newt-mitigation-guidelines/

Receptor/matter	Phase	Justification	Change since EIA Scoping?
Roosting and hibernating bats	Construction	Trees and buildings with potential for roosting bats will be affected by construction. Three bat roosts under the footprint of the Proposed Development have been found, and surveys are ongoing. A mitigation licence will be required. As the mitigation to be licensed is currently unknown there are likely significant effects. Sensitive lighting strategy implemented as part of a HCMP will safeguard any retained roosts during operation.	No. The Scoping Direction agreed that this receptor/matter should be scoped into further assessment.
Badger (and other nocturnal mammals)	Construction & operation	Surveys are currently ongoing but results to date indicate likely badger habitats within the Site boundary. As design plans are yet to be finalised, a mitigation licence may be required. As the mitigation to be licensed is currently unknown there are likely significant effects. Should a licence not be deemed appropriate upon final plans, reasonable avoidance measures will be implemented as part of the HCMP during construction.	Yes. A badger sett was found incidentally within 30m of the Proposed Works Area, which strengthens the position that assessment should be undertaken.

Extent of the Study Area

5.2.6 Different areas and site boundaries are referred to in this report. A summary is given below but the Ecological Survey Area is outlined for each survey type in the relevant sections:

- The 'Wider Site' – the whole Castle Cement landholding, shown as the red line boundary on **Figure 1** of **Volume 4, Technical Appendix 5.1** includes the Proposed Works Areas (see below), ancillary works areas and areas where no works are proposed as part of the Proposed Development;
- The 'Proposed Works Area' – area within which the Proposed Development works will occur (except for ancillary works), shown as the blue line boundary shown in **Figure 5** of **Volume 3, Technical Appendix 5.1**; and
- 'Ancillary works' – proposed works to facilitate and support the Proposed Development as described in **Volume 4, Technical Appendix 5.1**.
- The 'Landscape and Biodiversity Mitigation' – areas identified for Proposed Landscape and Habitat Enhancements as shown on the Landscape and Habitat Strategic Proposals (**Volume 4, Technical Appendix 9.4**).

5.3 Approach and methodology

Applicable guidance

5.3.1 The following guidance documents have been used during the preparation of this chapter:

- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine, September 2018[3]; and
- BS42020:2013 Biodiversity – Code of practice for planning and development[4].

Relevant elements of the Proposed Development

5.3.2 The following components of the Proposed Development are relevant to this chapter:

- Preparation, demolition and construction works:
  - Vegetation clearance;
  - Removal of top-soil;
  - Demolition of buildings;
  - Areas for plant maintenance and site offices/compound areas;
  - Storage areas for construction / excavated materials;
  - Acoustic disturbance from construction activities;

[3] https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.2-April-22-Compressed.pdf

[4] https://www.omegawestdocuments.com/media/documents/43/43.35%20BSI%20Biodiveristy%20Code%20of%20Practice.pdf

- Dust generation; and
- Lighting during demolition and construction.

- Land uses within the operational Proposed Development in particular:
  - New and upgraded infrastructure works;
  - New internal access roads and utilities;
  - New drainage;
  - Lighting;
  - Security – hoardings, fencing, gates; and
  - Soft and hard landscaping (implementation of landscape design and habitat management).
- Construction phase:
  - Temporary or permanent, direct or indirect loss of, degradation or disturbance of ecologically valuable land within the Site boundary and potential habitat for protected species.
- Operational phase
  - Permanent, direct or indirect loss or, degradation or disturbance of ecologically valuable land within the Site boundary and potential habitat for protected species; and
  - Potential ecological enhancements with the Proposed Development.

Data sources to inform the EIA baseline characterisation

5.3.3 The proposed assessment scope has been based on:

- A background data search (BDS) from Cofnod records centre which included a search for designated sites and protected species records within 2km of the Wider Site boundary, extended to 10km for SPAs, SACs and Ramsar sites;
- Previous ecology reports prepared for the Applicant's Mill 5 planning application[5]; and
- Great crested newt population monitoring data collected produced by Enfys Ecology between 2016 and 2023 for the active mitigation licence.

[5] https://planning.agileapplications.co.uk/flintshire/application-details/61541

Surveys to inform the EIA baseline characterisation

5.3.4 A full summary of surveys undertaken across the Wider Site to date can be found in **Volume 4, Technical Appendix 5.1** and **Volume 4, Technical Appendix 5.2**.

Assessment methodology

5.3.5 **Volume 2, Chapter 4: Approach to the EIA** confirms the position on the EIA Scoping exercise.

5.3.6 The EcIA follows the Chartered Institute of Ecology and Environmental Management's (CIEEM) Guidelines. The guidelines are endorsed by statutory consultees in EIA and other concerned organisations including UK statutory consultees Association of Local Government Ecologists (ALGAE), Institute of Environmental Management and Assessment (IEMA) and the Wildlife Trusts. The CIEEM Guidelines are also recommended in the planning guidance 'Planning for Biodiversity and Geological Conservation: A Guide to Good Practice'[6] as the recommended procedure for the ecological component of an EIA.

5.3.7 The EcIA involved the following key stages:

- Identifying the zone of influence arising from the whole lifespan of the Proposed Development;
- A BDS to obtain archival records of sites and species, and to gain information to focus the field surveys;
- Identifying ecological features (e.g. habitats, species, ecosystems and their functions/processes, previously known as ecological receptors) through field surveys and the background data search;
- Determination of the ecological value/importance of the ecological features;
- Identification of the potential impacts and assessment of effects on the integrity or conservation status of the ecological features in terms of their extent, magnitude, duration, reversibility, timing and frequency;
- Identify cumulative impacts;
- Identify significant effects of impact in the absence of any mitigation;
- Incorporation of ecological mitigation measures to avoid or reduce effects, and compensation measures to balance any unavoidable significant effects, and enhancement to provide net benefits for biodiversity over and above requirements for avoidance, mitigation and compensation; and
- Assessment of the significance of any residual ecological effects remaining after the implementation of mitigation and compensation measures.

Significance criteria

5.3.8 The assessment of likely significant effects as a result of the Proposed Development will take into account the construction and operational phases. The significance level attributed to each effect will be assessed based on the magnitude of change due to

[6] https://assets.publishing.service.gov.uk/media/5a79df7fed915d6b1deb3f70/143792.pdf

the Proposed Development and the sensitivity of the affected ecological feature to a given source of impact. Magnitude of change and the sensitivity of the affected ecological feature are both assessed on a scale of high, medium, low and negligible.

5.3.9 The overall significance of an effect will be determined qualitatively by measuring the magnitude of change effect against:

- The number of ecological features affected and their 'value', which will consider the scale of an effect (i.e. whether it is local or regional);
- The reversibility and duration of the effect;
- The type and sensitivity of the ecological feature affected; and
- The type of effect.

Identifying and evaluating the value/importance of ecological features

5.3.10 The EcIA guidelines suggest that the value or importance of ecological features should be defined in terms of geographical scale. Therefore, the value (or potential value) of ecological features within the zone of influence for the Proposed Development will be considered at the scales with associated values outlined in **Table 5.4**.

5.3.11 EcIA firstly involves determining the value of ecological features/receptors with an emphasis on different aspects of ecological value including designations, biodiversity value, potential value, secondary or supporting value, social value, economic value, legal protection and multi-functional features. These values are applied to the receptors within a defined geographical context, refer to **Table 5.4**.

Table 5.4 Ecological features evaluation criteria

Value of Ecological Feature	Example Criteria
Very High (International/ European)	An internationally designated site or candidate/proposed site (Special Protection Area (SPA), potential SPA, Special Area of Conservation (SAC), candidate SAC and/or Ramsar site). A sustainable area of a habitat listed in Annex I of the Habitats Directive or smaller areas of such habitat which are essential to maintain the viability of the larger whole. Sustainable population of an internationally important species or site supporting such a species (or supplying a critical element of their habitat requirement) i.e.: • IUCN Red List species that is listed as critically endangered, endangered or vulnerable; • Species listed in Annex IV of the Habitats Directive; • Sites that support 1% or more of a biogeographic population of a species; and • The species is at a critical phase of its life cycle.
High (National i.e. Wales)	A nationally designated site (Site of Special Scientific Interest (SSSI), National Nature Reserve) or a discrete area which

Value of Ecological Feature	Example Criteria
	meets the selection criteria for national designation (e.g. SSSI selection criteria). An area formally selected by Defra as a Nature Improvement Area. A sustainable area of a priority habitat identified in the UK BAP or of smaller areas of such habitat, which are essential to maintain the viability of the whole. Sustainable population of a nationally important species or site supporting such a species (or supplying a critical element of their habitat requirement) i.e.: • Species listed on Schedules 5 and 8 of the WCA (1981); • UK Red Data Book species; • Other species listed as occurring in 15 or fewer 10km squares in the UK; and • Sites supporting 1% or more of a national population.
Medium – High (Regional i.e. North of Wales)	Sites/populations which exceed the County-level designations but fall short of SSSI selection guidelines, including the following: • Sustainable areas of key habitat identified in the Regional BAP or smaller areas of such habitat, which are essential to maintain the viability of the whole; • Population of a species listed as being nationally scarce which occurs in 16-100 10km squares in the UK; • Population of a species listed in a Regional BAP or relevant Natural Area on account of its regional rarity or localisation; and • Sites supporting 1% or more of a regional population.
Medium (County i.e. Flintshire; District, i.e. Mold)	Some designated sites (including Sites of Importance for Nature Conservation, County Wildlife Sites, Sites of Metropolitan Importance). A viable area of habitat identified in the County BAP. Sustainable populations of the following species: • Species listed in a County/Metropolitan 'red data book' or BAP on account of its rarity/localisation in a county context; and • Sites supporting 1% or more of a county population.
Local (the survey area plus a 1km radius)	Very low importance and rarity, local scale: • Areas of habitat considered to appreciably enrich the habitat resource within the ecological Study Area itself. • A small population of a species of conservation concern i.e. listed in the Local BAP.
Site (i.e. survey area)	Ecological features that contribute to biodiversity only in their immediate vicinity would be valued at site level.

Characterising ecological impacts

5.3.12 Once the ecological features have been identified and their value defined, a judgment is made as to whether the Proposed Development is likely to result in significant impacts upon each of the identified features and, if appropriate, the nature of those impacts. Each potential ecological impact has a number of characteristics that need to be adequately described before the effect significance can be assessed.

5.3.13 A number of key factors have been considered when describing and assessing the nature of ecological impacts, including:

- Positive or adverse impacts/effects in accordance with nature conservation objectives and policy;
- Extent (area or distance);
- Magnitude (the size of an impact i.e. a departure from baseline, described in quantitative terms where possible. Amount or level of effect). Definitions for the levels of magnitude of change are described below:
    - **High magnitude** changes include those where there is the potential to affect the integrity of the ecological feature by substantially changing in the long term its ecological features, structures and functions, across its whole area, that enable it to sustain the habitat, complex of habitats and/or population levels of species that makes it important;
    - **Medium magnitude** changes include those where the ecological integrity of the feature is predicted to not be adversely affected in the long term, but where the project is likely to affect some, if not all, of the area's ecological structures and functions in the short or medium term. The Site may be able to recover through natural regeneration and restoration; and
    - **Low magnitude changes** include those which have the potential to cause some minor impacts of limited extent to an ecological feature and/or its quality. This level of impact can include limited changes over the medium term, noticeable changes over the short term, or barely discernible changes for any length of time. Impacts at this level are often temporary in nature and the Site can recover through natural regeneration.
- Duration in time as short-term (0-2 years), medium-term (2-10 years), long-term (where the effect occurs for 10 years or more and includes permanent effects (normally greater than 25 years) or related to species' life-cycles);
- Timing and frequency/intermittence (where the effect occurs for short periods of time and may re-occur occasionally at regular or irregular intervals, e.g. related to life cycles and breeding seasons); and
- Reversibility (whether the effect is permanent (where the effect represents a long-lasting change of an ecological feature) or temporary (where the effect occurs for a limited period of time and change at a defined ecological feature can be reversed).

5.3.14 Direct, indirect, residual and cumulative impacts are also considered.

- Direct impacts are changes directly attributable to a defined action of the Proposed Development such as the physical loss of a habitat or the immediate mortality of an individual of a particular species;
- Indirect impacts are attributable to an action which affects ecological resources through effects on an intermediary ecosystem, process or receptor, e.g. a loss of food resources for a species downstream of a site due to fish-kill by polluted runoff entering a river;
- After assessing the impacts of the Proposed Development all attempts should be made to avoid and mitigate ecological impacts. Once measures to avoid and mitigate ecological impacts have been finalised, assessment of the residual impacts should be undertaken to determine the significance of their effects on the identified ecological features.
- Cumulative impacts are the collective effects of changes that may be insignificant individually but in combination, often over time, have the potential to be significant.

5.3.15 Where the impact characteristics were unknown, this has been stated.

Significance of effects and geographic scale

5.3.16 Once each of these factors has been considered, a judgment on the significance of the effect on a particular ecological feature is made. This significance depends on both the characteristics and magnitude of the impact and the value of the ecological feature. CIEEM states that for the purposes of EcIA a 'significant effect' is an effect that either supports (in the case of a positive effect) or undermines (in the case of an adverse effect) biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Significant effects encompass impacts on structure and function of defined sites or habitats and the conservation status of habitats and species and can be considered significant at a wide range of scales from international to local.

5.3.17 Impacts on ecological integrity of designated sites are described by the Government Circular: Biodiversity and Geological Conservation[7] as: '… the coherence of ecological structure and function … that enables it to sustain the habitat, complex of habitats and/or levels of populations or species for which it was classified.'

5.3.18 The EC Habitats Directive[8] (Article 1, sections (e) and (i)) provides definitions for the conservation status of habitats and species, CIEEM's 2016 guidance[9] uses slightly modified versions of these definitions so that evaluation of conservation status can be applied to habitats or species within any defined geographical area:

- 'For habitats, conservation status is determined by the sum of the influences acting on the habitat, that may affect its extent, structure and functions as

[7] https://assets.publishing.service.gov.uk/media/5a78c5e7ed915d04220653ab/147570.pdf

[8] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31992L0043

[9] https://cieem.net/wp-content/uploads/2019/02/Principles-of-Preparing-Good-Guidance-for-Ecologists-and-Environmental-Managers-January-2016.pdf

well as its distribution and its typical species within a given geographical area'; and

- 'For species, conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.'

5.3.19 Once an effect is identified, the geographic scale at which it will take effect is established. For example, an effect may not be significant at a national scale but may be significant at a county or local scale. All of these judgments are based, wherever possible, on quantitative evidence; however, in some cases the professional judgment of an experienced ecologist may also be required.

5.3.20 Taking the value of the ecological feature (geographic scale) and the overall impact into account, an evaluation of the significance of an effect can be derived. This is indicated in **Table 5.5**. The table matrix below is one way of presenting and determining the significance of effects on ecological features, CIEEM's 2018 guidance does avoid and discourage the use of a matrix approach, if this is not possible then a clear distinction between evidence-based and value-based judgements must be identified.

Table 5.5 Significance criteria matrix

Ecological Value / Geographic Scale	Magnitude of Change		
	High	Medium	Low
Very High (International)	Major	Major	Major/Moderate
High (National)	Major	Major/Moderate	Major/Moderate
Medium – High (Regional)	Major/Moderate	Moderate	Moderate
Medium (County)	Major/Moderate	Moderate	Moderate/Minor
Low – Medium (District)	Moderate	Moderate/Minor	Minor
Low (Local)	Moderate/Minor	Minor	Minor/Negligible
Low (Site/Survey Area)	Minor/Negligible	Minor/Negligible	Negligible

Avoidance, mitigation, compensation and enhancement

5.3.21 Where possible significant ecological effects will be avoided through careful design and the mitigation hierarchy will be applied:

- Avoidance – seek options that avoid harm to ecological features;
- Mitigation – adverse effects should be avoided or minimised through mitigation measures, either through the design of the Proposed Development or subsequent measures that can be guaranteed. Mitigation is relevant for adverse impacts assessed as being potentially significant (before mitigation) or where required to ensure compliance with legislation;

- Compensation – where there are significant residual adverse ecological effects despite the mitigation proposed, these should be offset by appropriate compensatory measures. Compensation is relevant for adverse impacts assessed as being significant or where required to ensure compliance with legislation; and
- Enhancements – seek to provide net benefits for biodiversity over and above requirements for avoidance, mitigation or compensation.

5.3.22 Where avoidance of effects is not possible, suitable mitigation will be implemented to ensure that the residual effects are not significant. Opportunities to provide nature conservation enhancement will be incorporated within the Proposed Development, where possible.

5.4 Baseline conditions

Statutory designated sites

5.4.1 The following statutory sites were identified within 2km of the Wider Site boundary. The search was extended to 10km for Ramsar sites, SACs and SPAs. The distance from the Wider Site boundary is provided in the list below for each designated site. Detailed reasons for designation for all sites are listed in **Table 2** in **Volume 4**, **Technical Appendix 5.1**.

- Buckley Claypits and Commons SSSI (900m);
- Deeside and Buckley Newt Sites SAC (900m);
- River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid SAC ((6,310m (Wales), 9,408m (England));
- Dee Estuary / Aber Dyfrdwy (Wales) SAC (6,542m);
- The Dee Estuary (Wales) Ramsar site (6,542m);
- Alyn Valley Woods / Coedwigoedd Dyffryn Alun SAC (7,824m);
- Berwyn a Mynyddoedd De Clwyd / Berwyn and South Clwyd Mountains SAC (8,802m);
- Halkyn Mountain / Mynydd Helygain SAC (9,257m); and
- Midland Meres & Mosses Phase 2 (Wales) Ramsar site (9,566m).

Non-statutory designated sites

5.4.2 The following non-statutory sites were identified within 2km of the Wider Site boundary. All sites are locally designated Wildlife Sites (WS). The distance from the Wider Site boundary is provided below for each designated site. Detailed reasons for designation for all sites are listed in **Table 3** in **Volume 4**, **Technical Appendix 5.1**.

- Black Brook Plantation WS (230m);
- Bistre Wood WS (585m);
- Padeswood Pool WS (625m);
- Padeswood Marsh WS (660m);

- Padeswood Pasture WS (710m);
- Hartsheath WS (845m);
- Price's Hill Wood WS (945m);
- Coed Bryn Llys and Marsh WS (995m);
- Optec Pond WS (1,020m);
- Knowl Hill WS (1,085m);
- Marleyfield Meadow and Copse WS (1,100m);
- Plas Newydd Farm Lake WS (1,195m);
- Pontblyddyn Marsh and Coppa Wood WS (1,200m); and
- Garth Wood and Hartsheath WS (1,390m).

Habitats

5.4.3 The Wider Site contained the following habitats:

- Broadleaved plantation woodland;
- Mixed plantation woodland;
- Scrub (dense and scattered);
- Broadleaved trees (scattered and lines of);
- Semi-improved grassland;
- Neutral grassland;
- Improved grassland;
- Poor semi-improved grassland;
- Tall ruderal;
- Standing water;
- Running water;
- Spoil;
- Refuse-tip;
- Amenity grassland;
- Ephemeral/short perennial;
- Introduced shrub;
- Intact species-poor hedge;
- Hedgerow with trees;
- Buildings;
- Hardstanding; and
- Fence.

5.4.4 The Phase 1 Habitat map is provided as **Figure 2** in **Volume 4, Technical Appendix 5.1** and shows the location of the target notes referred to in the text below. A full description and photographs for each of the target notes are given in **Appendix A** and **Appendix B** of **Volume 4, Technical Appendix 5.1**.

Broadleaved plantation woodland

5.4.5 The Proposed Works Area contained two small strips of broadleaved plantation woodland (Target Note 20). The strip to the east contained trees up to 15m tall with canopy species limited to Sycamore *Acer pseudoplatanus*, Ash *Fraxinus excelsior* and Pedunculate Oak *Quercus robur*. The understorey contained additional woody species including Alder *Alnus glutinosa*, Silver Birch *Betula pendula*, Hazel *Corylus avellana*, Hawthorn *Crataegus monogyna*, Bramble *Rubus fruticosus agg* and Grey Willow *Salix cinerea*. The ground flora was relatively species-poor, limited to Ivy *Hedera helix* and common ruderal species. This woodland strip extended into a larger woodland block in the wider site, but the composition remained the same.

5.4.6 The woodland strip in the west of the Proposed Works Area was similar in species composition to the eastern strip but the trees were younger and less dense.

5.4.7 There were two further notable blocks of broadleaved plantation woodland in the Wider Site. The first was a woodland belt near the existing Site entrance (Target Note 3) which contained semi-mature trees including Hawthorn, Lombardy Poplar *Populus nigra 'Italica'*, Wild Cherry *Prunus avium*, Pedunculate Oak and *Lime Tilia sp*. The understorey and ground flora contained several garden escapes and ornamental species. The second was a large block to the east of the existing cement works (Target Note 4) which had a similar canopy composition to Target Note 20 but surrounded a portacabin structure currently used as an eco-centre for educational purposes (as shown in **Volume 3, Figure 1.6**). In areas used by the eco-centre, the understorey and ground flora had largely been cleared and were devoid of vegetation. Even in areas where the understorey had developed, the woody species diversity was low, being limited to mostly Hawthorn, Holly *Ilex aquifolium* and Bramble with some Sycamore saplings.

5.4.8 There were some small, isolated patches of woodland to the south west of the woodland denoted by Target Note 4. It is likely that these were once connected to the larger block but have become isolated through the construction of roads.

Mixed plantation woodland

5.4.9 The Proposed Works Area contained two areas of mixed plantation woodland (Target Note 14), both similar in composition with trees up to 12m and numerous young trees and saplings still in protective tree guards. The canopy was more diverse than the nearby broadleaved plantation woodland (Target Note 20), containing Sycamore, Alder, Hazel, Hawthorn, Ash, European Larch *Larix decidua*, Scots Pine *Pinus sylvestris* and Lime. The understorey was dense and impenetrable in places, and contained additional woody species including Silver Birch, Beech Fagus sylvatica, Blackthorn *Prunus spinosa*, Pedunculate Oak and Mapleleaf Viburnum *Viburnum*

acerifolium. The ground flora was relatively sparse and was mostly comprised of species typical of the neighbouring grassland.

5.4.10 There were no additional areas of this habitat in the Wider Site.

Scrub (dense and scattered)

5.4.11 The Proposed Works Area and the Wider Site both contained multiple patches of dense and scattered scrub.

5.4.12 The north west corner of the Proposed Works Area contained several areas of dense scrub (Target Notes 9, 26 and 31) with a variety of native and non-native woody species including Field Maple *Acer campestre*, Sycamore, Horse-chestnut *Aesculus hippocastanum*, Spotted-laurel *Aucuba japonica*, Silver Birch, Hawthorn, Ash, Fly Honeysuckle *Lonicera xylosteum*, Wild Cherry, Pedunculate Oak, Dog-rose *Rosa canina*, Bramble, Goat *Willow Salix caprea*, Snowberry *Symphoricarpos albus* and Gorse *Ulex europaeus*. Scattered semi-mature and mature trees were present in some of the scrub including Sycamore and Pedunculate Oak.

5.4.13 The south of the Proposed Works Area contained two large patches of dense scrub. The first was on top of a grassland mound (Target Note 17). It was dominated by Blackthorn and Willow Salix sp. and had started to encroach into the neighbouring grassland. The other was adjacent to a stream along the southern boundary (Target Note 15). This area contained greater woody species diversity with Hazel, Hawthorn, Pedunculate Oak, Bramble and Goat Willow all recorded, but tall ruderal vegetation was also more prevalent due to the overgrown nature of the area.

5.4.14 There were further smaller patches of dense and scattered scrub within the Proposed Works Area and Wider Site, comprised of species already described.

Broadleaved trees (scattered and lines of)

5.4.15 There was a line of broadleaved trees in the north west of the Proposed Works Area bordering a car park (Target Note 24). The trees were up to c.12m tall and included Sycamore, Ash and Poplar *Populus sp*.

5.4.16 Further broadleaved trees were present in the Proposed Works Area and the Wider Site, scattered throughout other habitats, and in lines along the Wider Site or habitat boundaries. Species present were typical of those recorded in other scrub and woodland habitats across the Wider Site.

Semi-improved grassland

5.4.17 There was a large spoil mound in the south of the Proposed Works Area (Target Note 16) which has been colonized by grassland. The grassland had a sward height up to 1m and contained the following grass species: Cock's-foot *Dactylis glomerata*, Red Fescue *Festuca rubra*, Yorkshire-fog *Holcus lanatus* and Annual Meadow-grass *Poa annua*. A more diverse range of herbs was present compared to the nearby poor semi-improved fields (Target Note 11). A full list of plant species recorded during the

updated species list survey in this area is provided in **Volume 4, Technical Appendix 5.1**.

Improved grassland

5.4.18 In the north of the Proposed Works Area were two sheep-grazed fields (Target Note 8), separated by a Hawthorn hedge. Due to the heavy grazing pressure, few species were visible and identifiable, limited to Creeping Thistle *Cirsium arvense*, Spear Thistle *Cirsium vulgare*, Red Fescue, Perennial Rye-grass and Common Nettle *Urtica dioica*.

5.4.19 The Wider Site also contained a series of sheep-grazed fields in the north east which were intersected by hedgerows with trees. The species composition was similar to Target Note 1 and was dominated by species typical of improved grassland. There was a damp area near one of the hedgerows which contained Brooklime *Veronica beccabunga*.

Tall ruderal

5.4.20 The only distinct patches of tall ruderal vegetation in the Proposed Works Area were in the unused refuse-tip (Target Note 12), and in the north west corner around Padeswood Hall (Target Notes 9 and 25). Tall ruderal vegetation was also found scattered throughout other habitats but not in an area large enough to map distinctly. Species present typically included Cow Parsley *Anthriscus sylvestris*, Creeping Thistle, Great Willowherb *Epilobium hirsutum*, Hogweed and Common Nettle.

5.4.21 The Wider Site contained a fenced off area of tall ruderal vegetation around two ponds (Target Note 6) including Rosebay Willowherb *Chamaenerion angustifolium*, Creeping Thistle, Cock's-foot, Tufted Hair-grass *Deschampsia cespitosa*, Teasel *Dipsacus fullonum*, Rough Meadow-grass *Poa trivialis*, Broad-leaved Dock *Rumex obtusifolius*, Common Nettle, and Hawthorn saplings.

Ditches

5.4.22 The Proposed Works Area contained a wet ditch in the mixed plantation woodland belt denoted by *Target Note 14*. It ran from the existing cement works to the north, to the stream along the southern Site boundary though no flow was visible during the survey. The ditch contained little water and was found to have almost dried during water vole surveys in August 2022 (**Volume 4**, **Technical Appendix 5.2**). It was heavily shaded, contained leaf litter and no aquatic vegetation was observed.

5.4.23 A few small ditches were present in the unused refuse-tip (*Target Note 12*) connected to the ponds, but these were too small to constitute a mappable unit. They were dominated by Common Reed with little water present.

5.4.24 The Wider Site contained a wet ditch to the east of the active areas (starting near Target Note 4) which was previously reported as a brook (AECOM, 2017). The ditch had no flow and the water was contained in pools between sections that had dried out. It was heavily shaded by neighbouring woodland and as such had heavy leaf

litter and little aquatic vegetation. A second ditch matching this description was present to the east of Target Note 5.

5.4.25 Waterbodies are described in more detail in **Volume 4**, **Technical Appendix 5.2** in relation to great crested newts *Triturus cristatus* and water vole *Arvicola amphibius*.

Running water

5.4.26 There was a small stream running along part of the Proposed Works Area southern boundary which then continued off-site to the west (Target Note 15). The stream flowed in a westerly direction, was heavily shaded and appeared to contain no aquatic vegetation though most of the stream was obscured from view by dense scrub.

5.4.27 The stream is described in more detail in **Volume 4**, **Technical Appendix 5.2** in relation to water vole.

Spoil

5.4.28 There was a series of spoil mounds in the east of the Wider Site that were becoming colonized by vegetation including ephemerals and scrub.

5.4.29 The unused refuse-tip (Target Note 12) contained numerous spoil heaps from when the area was excavated. However, these had become so heavily colonized by vegetation that they have been mapped as the relevant habitat type rather than as spoil.

Refuse-tip

5.4.30 The south west corner of the Proposed Works Area comprised an unused refuse-tip (Target Note 12) which at the time of survey was being managed as a wildlife area. The area contained spoil mounds and standing open water in bowls that had previously been excavated for refuse. The area had been colonised by vegetation with minimal areas of bare ground and hardstanding remaining, primarily by grassland but stands of tall ruderal vegetation and scrub were also present. There were stands of Common Reed and Bulrush in the south east corner where there was damper ground.

Amenity grassland

5.4.31 The Wider Site contained several patches of amenity grassland (Target Notes 8, 28, 29 and 30), the majority of which were road verges. These areas appeared to be frequently managed with a short sward of only common grass and herb species including Common Bent Agrostis capillaris, Cock's-foot, Yorkshire-fog, Yarrow Achillea millefolium, Ribwort Plantain *Plantago lanceolata*, Creeping Buttercup *Ranunculus repens*, Dandelion *Taraxacum officinale agg*. and White Clover *Trifolium repens*. Scattered trees were found in some of the areas (Target Notes 28 and 30) including Sycamore, Horse-chestnut, Sweet Chestnut *Castanea sativa*, Beech, Poplar, Turkey Oak *Quercus cerris*, Grey Willow, Lime, Elm *Ulmus sp*. and conifers.

5.4.32 The ancillary works area also contained two amenity grassland fields in the north east, one of which was until recently managed as a football pitch (Target Note 1).

Grass species present included Meadow Foxtail, Sweet Vernal-grass *Anthoxanthum odoratum*, Yorkshire-fog, Perennial Rye-grass and Rough Meadow-grass. Herb species diversity was greater than in some of the other amenity and improved grassland areas on the Wider Site but the species were all common and the sward height was only c.5-10cm due to frequent management. There were strips of tall ruderal vegetation around the field margins including Garlic Mustard *Alliaria petiolata*, Cow Parsley, Rosebay Willowherb, Creeping Thistle, Teasel, Hogweed, Broad-leaved Dock and Common Nettle.

Ephemeral/short perennial

5.4.33 Ephemeral and short perennial species were recorded throughout the Proposed Works Area and the Wider Site, particularly on spoil mounds and disturbed ground.

Introduced shrub

5.4.34 Areas of introduced shrub were recorded within active areas of the Wider Site. These contained mostly ornamental varieties of Field Maple, Silver Birch, Holly, Privet *Ligustrum sp.*, Willow and Elm (Target Note 10).

5.4.35 A single specimen of a Cotoneaster *Cotoneaster horizontalis* species was found in ornamental planting in the south east of the existing cement works (Target Note 23). This is an invasive non-native species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Buildings

5.4.36 The land north west of the Proposed Works Area contained a building known as Padeswood Hall which included a derelict residential property and garage block. A residential building known as Padeswood Hall Farm was also present, which was occupied. The Wider Site contained a variety of buildings and structures including toilet blocks, office buildings, industrial buildings and silos. Those due to be affected by the Proposed Development are described in more detail in **Technical Appendix 5.2** in relation to roosting bats.

Hardstanding

5.4.37 The Proposed Works Area contained access roads/tracks and car parks in the north west associated with Padeswood Hall and Padeswood Hall Farm (Target Note 27). These contained only occasional scattered plant species including Daisy *Bellis perennis*, Butterfly-Bush *Buddleja davidii*, Greater Plantain *Plantago major*, Annual Meadow-grass and Bramble.

5.4.38 There was another car park in the Proposed Works Area, north of the amenity grassland at (Target Note 8). This area contained scattered ephemeral and short perennial species including American Willowherb *Epilobium ciliatum*, Perforate St

John's-wort *Hypericum perforatum*, Common Bird's-foot-trefoil *Lotus corniculatus* and Annual Meadow-grass.

5.4.39 The Wider Site contained large areas of hardstanding associated with the cement works. These were largely devoid of vegetation but where present, species closely matched those described above.

Fence

5.4.40 Different types of fencing were present across the Wider Site including metal palisade fencing, and post and wire fencing. All were devoid of vegetation and demarcated a boundary.

Animals

5.4.41 At least 126 noteworthy species are recorded from places within 2km of the Wider Site boundary. Noteworthy species include species of principal importance that are listed under Section 7 of the Environment (Wales) Act 2016[10].

5.4.42 Of these, ten are plants, 28 are invertebrates, three are fish, five are amphibians, four are reptiles, 64 are birds and at least 12 are mammals. Species that are protected by law under Schedules 2 and 5 of The Conservation of Habitats and Species Regulations 2017 (as amended)[11], Schedules 1, 2, 5 and 8 of The Wildlife and Countryside Act 1981 (as amended)[12] or The Protection of Badgers Act 1992[13] that have been recorded in the search area are highlighted in the full species list given in **Appendix 5.2A** of **Volume 4, Technical Appendix 5.2**.

Great crested newt and other amphibians

5.4.43 The BDS returned records of great crested newts, most recently from 2021, and they have been previously recorded in all ponds within the Applicant landholding except Pond 4 which has been dry for a considerable time and Pond 12 which had not been surveyed previously. Great crested newts have also been found previously within the active working areas of the Wider Site, particularly in underground cable tunnels (*pers commun.*). Furthermore, an adult female great crested newt was incidentally recorded on a track near Pond 6 during a bat transect survey in June 2022. Common amphibian species were also incidentally recorded on the Wider Site during reptile surveys.

5.4.44 There are a total of 14 ponds within the Wider Site boundary and a further 15 within 500m (considered the distance relevant for permanent works). Due to the known

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

[11] https://www.legislation.gov.uk/uksi/2017/1012/contents/made

[12] https://www.legislation.gov.uk/ukpga/1981/69

[13] https://www.legislation.gov.uk/ukpga/1992/51/contents

presence of great crested newts in the Wider Site, ponds outside of the Wider Site boundary were not surveyed as this would not impact the mitigation requirements.

5.4.45 The HSI assessment of Pond 12 identified it as being of 'good' suitability to great crested newts, but the pond was negative for great crested newt eDNA.

5.4.46 The Ecological Survey Area for great crested newts and other amphibians, which is described in **Volume 4, Technical Appendix 5.1**, is almost entirely suitable for great crested newt and other amphibians, containing a variety of habitats including scrub, ruderal vegetation, woodland, grassland of varying heights and refuges such as log piles, spoil heaps and rubble piles.

Bats

5.4.47 The BDS returned records of nine species of bat:

- Unidentified bat species;
- Myotis species *Myotis sp.*;
- Whiskered bat Myotis mystacinus;
- Noctule Nyctalus noctula;
- Pipistrelle species *Pipistrellus sp.*;
- Common pipistrelle Pipistrellus pipistrellus;
- Soprano pipistrelle *Pipistrellus pygmaeus*;
- Brown long-eared bat *Plecotus auratus*; and
- Lesser horseshoe bat Rhinolophus hipposideros.

5.4.48 Tree assessments and surveys were undertaken, the detailed methods of which are provided in **Technical Appendix 5.2.** These included:

- **Ground level tree assessment (GLTA):** The majority of the trees within the Ecological Survey Area are in good condition and do not support features suitable for roosting bats. **Figure 4** of **Technical Appendix 5.2** shows individual trees which are of high, moderate or low suitability for roosting bats. These trees all featured at least one roost feature but were of a large enough size to possess more that could not be viewed from ground level. Detailed results of the GLTA are provided in **Appendix E** of **Technical Appendix 5.2**.
- **Aerial inspections:** Upon aerial and endoscope inspection, no bats were observed in any of the trees and no evidence of roosting within the features was recorded. After the first aerial inspection, three trees were categorised as high roosting potential and 13 trees were categorised as moderate roosting potential. Six trees were categorised as having potential for hibernating bats. For trees on which a full aerial inspection could not be undertaken due to dense ivy or those which were deemed unsafe to climb (ten trees in total), emergence surveys were proposed in lieu of further aerial inspections.
- Building assessments and surveys, including:

- **Emergence surveys:** Detailed methods of the emergence surveys are provided in **Volume 4, Technical Appendix 5.2**. Three confirmed roosts on two buildings were identified during the emergence surveys. One emergence of a common pipistrelle was recorded on 07 June 2023 from a cavity beneath a roof tile on the south eastern corner of Building 7. Two emergences were recorded from Building 9 on 07 June 2023. Both bats were common pipistrelles. One bat emerged from a crevice beneath a lifted roof tile on the eastern aspect of the main building, and one bat emerged from a south-facing gap in the brickwork of a chimney.
- **Preliminary roost assessment (PRA):** Detailed methods and results of the PRA are provided in **Technical Appendix 5.2,** respectively. Building locations are shown in **Figure 5** of **Technical Appendix 5.2**. A summary of PRA results gathered is provided in **Table 5.6**. As an internal inspection could not be undertaken on Buildings 7, 8, 12 and 13 it is assumed on a precautionary basis that the buildings could offer suitability for hibernating bats. As such the buildings will be demolished in accordance with Reasonable Avoidance Measures (RAMs).

Table 5.6 PRA results

Building number	Roosting bat potential
Building 1 – Toilet block	**Summer roosting:** Low
	Hibernation: Negligible
Building 2 – Slurry pits	**Summer roosting:** Low
	Hibernation: Negligible
Building 3 – Slurry pit pump room	**Summer roosting:** Negligible
	Hibernation: Low
Building 4 – Disused office	**Summer roosting:** Low
	Hibernation: Negligible
Building 5 – Garage one	**Summer roosting:** Low
	Hibernation: Negligible
Building 6 – Garage two	**Summer roosting:** Negligible
	Hibernation: Negligible
Building 7 - Garage three	**Summer roosting:** Moderate
	Hibernation: Could not be inspected internally
Building 8 - Garage four	**Summer roosting:** Moderate
	Hibernation: Could not be inspected internally
Building 9 – Padeswood Hall	**Summer roosting**: Moderate
	Hibernation: Low
	Summer roosting: Low

Building number	Roosting bat potential
Building 10 – Padeswood Hall outbuilding	**Hibernation:** Negligible
Building 11 – Padeswood Hall Farm	**Summer roosting:** Moderate
	Hibernation: Negligible
Building 12 – Office building	**Summer roosting:** Low
	Hibernation: Could not be inspected internally
Building 13 – Sports Pavilion	**Summer roosting:** Low
	Hibernation: Could not be inspected internally

Badgers

5.4.49 The BDS returned records of badger, most recently from 2021, however no evidence of badgers was recorded on the Wider Site or within 30m of it (where access allowed) during the Phase 1 Habitat Survey. Woodland, scrub and hedgerows provide suitable habitat for sett building and grassland fields provide extensive foraging habitat.

5.4.50 During the aerial tree inspections undertaken in June 2023, a badger sett considered to be active was found incidentally within the Wider Site. Evidence of badger activity was also found within the surrounding area, including snuffle holes and latrines.

5.4.51 The specific locations of badger setts are confidential so have not been provided in this planning application.

5.5 Summary Assessment of Nature Conservation Value of Ecological Features

5.5.1 **Table 5.7** lists the nature conservation importance assigned to the valued ecological features which have been scoped into this assessment (**Table 5.3**). The value of the ecological features has to be assigned on a site-by-site (i.e. project-specific) basis. Therefore, **Table 5.7** lists first the value of the ecological features implied by legislation or nature conservation designations, and second the value in context of the Proposed Development, the Wider Site and its surroundings. Where species surveys have been undertaken and a species ruled out as being present or unlikely to be present this species is not considered further in this assessment.

Table 5.7 Nature Conservation Value of Ecological Features

Ecological feature	General UK value inferred by legislation and action plans	Intrinsic value of the feature in the context of the Site	Justification of intrinsic value of feature in the context of the Proposed Development in reference to baseline
Habitats			

Ecological feature	General UK value inferred by legislation and action plans	Intrinsic value of the feature in the context of the Site	Justification of intrinsic value of feature in the context of the Proposed Development in reference to baseline
Broadleaved plantation woodland Mixed plantation woodland	National. As broad-leaved semi-natural woodland is a UK BAP habitat (referred to as deciduous woodland).	Local. It should be noted that the Phase 1 habitat survey undertaken recorded that in nature conservation terms these areas of woodland were not of particularly special diversity or interest.	Large parts of the Proposed Works Area are formed by poor plantation woodland containing Sycamore, Alder, Hazel, Hawthorn, Ash, European Larch, Scots Pine and Lime. The understorey was dense and impenetrable in places, and contained additional woody species including Silver Birch, Beech, Blackthorn, Pedunculate Oak and Mapleleaf Viburnum. The ground flora was relatively sparse and was mostly comprised of species typical of the neighbouring grassland
Dense and scattered scrub	Local. Dense and scattered scrub is of low rarity and is not a UK BAP habitat.	Local	Scrub is present across numerous areas of the wider site, particularly in the north west and south west corners. This habitat is typical of undisturbed areas in which vegetation is left to colonise. Species included variety of native and non-native woody species including: Field, Sycamore, Horse-chestnut, Spotted-laurel, Silver Birch, Hawthorn, Ash, Fly Honeysuckle, Wild Cherry, Pedunculate Oak, Dog-rose, Bramble, Goat Willow, Snowberry, Gorse, Hazel, Hawthorn, Pedunculate Oak, Bramble and Goat Willow.
Broadleaved trees (scattered and lines of)	Local. Broadleaved trees (scattered and lines of) are of low rarity and are not UK BAP habitats.	Local	The habitats include Sycamore, Ash and Poplar trees and are present across the Wider Site. Other species present were typical of those recorded in other scrub and woodland habitats across the Wider Site.
Semi-improved grassland	Local. Semi-improved grassland is of low rarity and is not a	Local	Semi-improved grassland is widespread across the Wider Site. The south west area had a sward height up to 1m and contained the following grass species: Cock's-foot, Red

Ecological feature	General UK value inferred by legislation and action plans	Intrinsic value of the feature in the context of the Site	Justification of intrinsic value of feature in the context of the Proposed Development in reference to baseline
	UK BAP habitat.		Fescue, Yorkshire-fog and Annual Meadow-grass.
Tall ruderal	Local. Tall ruderal is of low rarity and is not a UK BAP habitat.	Site	Tall ruderal is present elsewhere across the Wider Site, and was also found scattered throughout other habitats but not in an area large enough to map distinctly. Species present typically included Cow Parsley, Creeping Thistle, Great Willowherb, Hogweed and Common Nettle.
Standing water - ditches	Local. Ditches are of low rarity and are not a UK BAP habitat.	Local	The Proposed Works Area contained a wet ditch in the mixed plantation woodland belt. It ran from the existing cement works to the north to the stream along the southern boundary though no flow was visible during the survey. The ditch contained little water and was found to have almost dried during water vole surveys in August 2022. It was heavily shaded, contained leaf litter and no aquatic vegetation was observed. Other ditches containing leaf litter and dense reed coverage were present around the Wider Site.
Running water - streams	Local. The stream is marginal suitability for water vole and does not qualify as a BAP priority habitat.	Local	There was a small stream running along part of the Proposed Works Area southern boundary which then continued off-site to the west. The stream flowed in a westerly direction, was heavily shaded and appeared to contain no aquatic vegetation.
Protected species			
Bats (roosting)	International, bats are listed as a European Protected Species in the Habitats and Species Regulations, 2017.	Local	Three confirmed roosts on two buildings were identified during the emergence surveys. Upon aerial and endoscope inspection, no bats were observed in any of the trees and no evidence of roosting within the features was recorded. After the first aerial inspection, three trees were categorised as high roosting potential and 13 trees were categorised as moderate roosting

Ecological feature	General UK value inferred by legislation and action plans	Intrinsic value of the feature in the context of the Site	Justification of intrinsic value of feature in the context of the Proposed Development in reference to baseline
			potential. Six trees were categorised as having potential for hibernating bats. The Wider Site supports low numbers of roosting bats, and therefore the feature's intrinsic value is considered to be of local level.
Great crested newt and other amphibians	International, great crested newts are listed as a European Protected Species in the Habitats and Species Regulations, 2017. Other amphibians are of Local value.	National	The BDS returned records of great crested newts, most recently from 2021, and they have been previously recorded in all ponds within the Applicant's landholding except Pond 4 which has been dry for a considerable time and Pond 12 which had not been surveyed previously. Great crested newts have also been found previously within the active working areas of the Wider Site, particularly in underground cable tunnels. The Wider Site supports a network of great crested newt breeding ponds and hibernation opportunities for this internationally protected species and therefore the feature's intrinsic value is considered to be of national level.
Badger and other nocturnal mammals	Badger are listed under the Protection of Badgers Act 1992. Nocturnal mammals such as Hedgehog are listed under the Wildlife and Countryside Act 1981 (as amended) and they are therefore considered to be of national importance.	Local	One active sett was found during aerial inspection surveys on trees. As such, surveys are currently ongoing for badgers. Several disused badger setts were found across the Wider Site. Records of hedgehog were identified within 1km of the Wider Site. Habitats at the Wider Site that are suitable for these species include woodland, rough grassland and scrub. The Wider Site is likely to only support low numbers of badgers and hedgehogs and therefore its intrinsic value at site level is considered to be local.

5.6 Relevant legislation and planning policy

Relevant legislation

5.6.1 A number of Acts, Directives and international conventions aim to conserve biodiversity and nature conservation interest in the UK. A summary of relevant legislation is provided below:

- The Bonn Convention[14];
- The Bern Convention[15];
- The Convention on Biological Diversity[16];
- The Habitats Directive[17];
- The Birds Directive[18];
- Wildlife and Countryside Act, 1981 (as amended)[19];
- The Countryside and Rights of Way Act, 2000[20];
- The Environment (Wales) Act 2016, Section 6[21];
- Conservation of Habitats and Species Regulations, 2017 (as amended)[22]; and
- The Protection of Badgers Act 1992[23].

Relevant planning policy

5.6.2 Planning policy at the national and local level and its relevance to environmental design and assessment is summarised below and detailed within the **Planning, Design and Access Statement** which forms part of this DNS planning application and examines the merits of the Proposed Development against the relevant planning policies:

- Planning Policy Wales[24]
- Flintshire Local Development Plan[25]

[14] https://www.cms.int/
[15] https://www.coe.int/en/web/bern-convention
[16] https://www.cbd.int/
[17] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A31992L0043
[18] https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:020:0007:0025:en:PDF
[19] https://www.legislation.gov.uk/ukpga/1981/69
[20] https://www.legislation.gov.uk/ukpga/2000/37/contents
[21] https://www.legislation.gov.uk/anaw/2016/3/contents/enacted
[22] https://www.legislation.gov.uk/uksi/2017/1012/contents/made
[23] https://www.legislation.gov.uk/ukpga/1992/51/contents
[24] https://www.gov.wales/sites/default/files/publications/2024-02/planning-policy-wales-edition-12_1.pdf
[25] https://www.flintshire.gov.uk/en/Resident/Planning/Flintshire-Local-Development-Plan.aspx

- Flintshire County Council Environment Act - Section 6 Biodiversity Duty Delivery Plan (update 2020)[26]

5.7 Assessment of potential significant effects, additional mitigation and residual effects

Predicted significant effects

5.7.1 This section uses the BDS and ecological baseline to identify potential adverse effects on the ecological features throughout the Proposed Development. All potential impacts on ecological and nature conservation resources are discussed and reviewed in order to design appropriate mitigation measures. The significance of any impacts remaining after mitigation (i.e. residual impacts) are also described.

Site Preparation, Demolition and Construction

5.7.2 The Proposed Development will be constructed over existing areas of broadleaved semi-natural woodland, scrub, tall ruderal herbs and scattered scrub, bare ground with short semi-ruderal vegetation, rough grassland, standing water (ditches and ponds) and open mosaic habitats.

5.7.3 Generic potential impacts on ecological features associated with site preparation, demolition and construction include:

- Permanent loss of habitat (vegetation clearance) and species within the Site boundary due to ground and excavation works;
- Permanent loss of habitat (vegetation clearance) and species within the Site boundary due to the provision of services and utilities;
- Permanent loss of habitat (vegetation clearance) and species within the Site boundary due to construction of hard-surfaces and structures;
- Temporary loss of habitat through siting and subsequent removal of site offices, compounds and storage areas of construction materials, as well as final site clearance after construction;
- Temporary and potentially permanent displacement of species from within the Site boundary;
- Fragmentation of habitats or severance of ecological corridors during construction;
- Degradation of habitats that cannot easily be recreated;
- Disturbance of species within the Site boundary due to construction noise, vibration and site personnel;
- Disturbance of species due to access and travel on and off the Wider Site during construction;
- Environmental incidents and accidents (e.g. spillages, noise, fire and emissions);

[26] https://www.flintshire.gov.uk/en/PDFFiles/Countryside--Coast/Biodiversity/Flintshire-County-Council-Environment-Act-Section-6-Biodiversity-Duty-Delivery-Plan-update-2020.pdf

- Disturbance/displacement of species within the Site boundary by an increase in artificial lighting;
- Impacts on adjacent habitats (and the species that use them), for example through noise and visual disturbance; and
- Rainwater runoff from hard-standing during construction.

5.7.4 Longer-term impacts, though more likely to be avoided or reduced through mitigation, may include the modification of habitats and introduction of undesirable species (such as injurious weeds or invasive alien species) as a result of traffic movements, reinstatement works and landscaping.

5.7.5 Where such impacts occur mitigation measures will be adopted to help eliminate or offset impacts.

Construction phase

5.7.6 An assessment of the potential significant effects, additional mitigation, residual effects and monitoring during construction has been undertaken in **Table 5.8**.

Table 5.8 Assessment of potential significant effects, additional mitigation, residual effects and monitoring during construction

Receptor	Potential Significant Effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
Habitats		
Broadleaved and mixed plantation woodland	Potential significant effects	Direct - Habitat loss, degradation and fragmentation through woodland habitat clearance. The woodland is considered to be of **Local (Low)** value. The magnitude of change, prior to mitigation, is **High**. Therefore there is likely to be a **direct, permanent, long-term** effect of **Moderate adverse** significance. Indirect - The retained woodland could also be affected during construction through indirect impacts such as non-chemical pollution (dust, noise and lighting) on nearby areas of retained woodland. The magnitude of change, prior to mitigation, is **Low**. Therefore there is likely to be an **indirect, temporary, short-term** effect of **Minor adverse** significance.
	Additional (secondary and tertiary) mitigation	A new area of woodland will be created at the north east corner of the Wider Site, which exceeds the area of that which will be lost as a result of the Proposed Development. This will be of greater value to wildlife once it has established due to its larger size than existing. Mitigation measures for the retained areas will be controlled through implementation of an HCMP and CEMP to include: • Fencing will be designed and installed around the perimeters of the adjacent woodland to prevent incursion of vehicles and personnel into this area. Fencing will be left in place throughout the construction phase. • Night-time lighting during construction phases should be undertaken in accordance with a lighting management plan to avoid ecologically sensitive areas. This will reduce the impact on nocturnal animals. Noise impact and mitigation are discussed in **Volume 2, Chapter 10: Noise and vibration.**
	Residual effects and monitoring	With the specified mitigation applied the magnitude of change for the woodland will be **Medium**, however the woodland will be replanted and the magnitude will reduce to Low once the newly created woodland is established. As such any **direct**, **permanent**, **long-**

Receptor	Potential Significant Effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
		term effects on the woodland within the Site boundary are likely to be of **Negligible** significance. **F**ollowing the application of mitigation, the magnitude of change in relation to indirect impacts remains **Low,** and indirect impacts will be of **Negligible** significance. No monitoring will be required.
Dense and scattered scrub	Potential significant effects	Direct - Habitat loss, degradation and fragmentation through scrub clearance. The scrub is considered to be **of Local (Low)** value. The magnitude of change, prior to mitigation, is **Medium**. Therefore, there is likely to be a **direct, permanent, long-term** effect of **Minor adverse** significance. Indirect - The retained scattered scrub within the Wider Site could also be affected during construction through indirect impacts such as non-chemical pollution (dust, noise and lighting). The magnitude of change, prior to mitigation, is **Low**. Therefore there is likely to be an **indirect, temporary, short-term** effect of **Minor adverse** significance.
	Additional (secondary and tertiary) mitigation	Mitigation measures for the retained areas will be controlled through implementation of an HCMP and CEMP, which will include for example measures to limit non-chemical pollution such as dust suppression and removal of litter generated during construction. Measures implemented to mitigate direct impacts on woodland habitat will also benefit dense and scattered scrub. Habitat loss will be compensated for within the Landscape and Biodiversity Mitigation Area, which will contain broadleaved woodland, rough neutral grassland, enhanced hedgerows and four new ponds designed for great crested newts, with associated hibernacula and refugia. The Landscape and Biodiversity Mitigation Area will be managed through the HCMP specifically to provide greater biodiversity value than existing.
	Residual effects and monitoring	With the specified mitigation applied the magnitude of change for dense and scattered scrub will be **Medium**, reducing to **Low** as the Landscape and Biodiversity Mitigation Area becomes established. As such, there is likely to be **direct**, **permanent**, **long-term** effects on the habitat within the Study Area of **Negligible** significance. Following the application of mitigation, the magnitude of change in relation to indirect impacts remains **Low,** and indirect impacts will be of **Negligible** significance. No monitoring will be required.

Receptor	Potential Significant Effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
Broadleaved trees (scattered and lines of)	Potential significant effects	Direct – Habitat loss, degradation and fragmentation through tree felling. The trees are considered to be **of Local (Low)** value. The magnitude of change, prior to mitigation, is **High**. Therefore, there is likely to be a **direct, permanent, long-term** effect of **Moderate adverse** significance. Indirect – The retained trees could also be affected during construction through indirect impacts such as non-chemical pollution (dust, noise and lighting) or encroachment into root protection zones on nearby scattered and lines of trees. The magnitude of change, prior to mitigation, is **Low**. Therefore, there is likely to be an **indirect, temporary, short-term** effect of **Minor adverse** significance.
	Additional (secondary and tertiary) mitigation	Mitigation measures for the retained areas will be controlled through implementation of an HCMP and CEMP, which will include for example measures to limit non-chemical pollution such as dust suppression and removal of litter generated during construction. Measures implemented to mitigate impacts on woodland habitat will also benefit broadleaved trees. Habitat loss will be compensated for within the Landscape and Biodiversity Mitigation Area, which will contain broadleaved woodland, rough neutral grassland, enhanced hedgerows and four new ponds designed for great crested newts, with associated hibernacula and refugia. The Landscape and Biodiversity Mitigation Area will be managed through the HCMP specifically to provide greater biodiversity value than existing.
	Residual effects and monitoring	With the specified mitigation applied, the magnitude of change on scattered and lines of broadleaved trees will be **Medium,** reducing to **Low** as the Landscape and Biodiversity Mitigation Area becomes established. As such any **direct, temporary, long-term** effects on the trees within the Site boundary are likely to be of **Negligible** significance. Following the application of mitigation, the magnitude of change in relation to indirect impacts remains **Low,** and indirect impacts will be of **Negligible** significance. No monitoring will be required.
Semi-improved grassland	Potential significant effects	Direct – Habitat loss, degradation and fragmentation through vegetation clearance. The grassland is considered to be of **Local (Low)** value. The magnitude of change, prior to mitigation, is **Medium**. Therefore, there is likely to be a **direct, permanent, long-term** effect of **Minor adverse** significance.

Receptor	Potential Significant Effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
		Indirect – Semi-improved grassland could also be affected during construction through indirect impacts such as non-chemical pollution (dust, noise and lighting). The magnitude of change, prior to mitigation, is **Low**. Therefore, there is likely to be an **indirect, temporary, short-term** effect of **Minor adverse** significance.
	Additional (secondary and tertiary) mitigation	Mitigation measures for the retained areas will be controlled through implementation of an HCMP and CEMP, which will include for example measures to limit non-chemical pollution such as dust suppression and removal of litter generated during construction. A new area of rough, semi-improved grassland will be created at the north east corner of the Wider Site, which exceeds the area of that which will be lost as a result of the Proposed Development. This will be of greater value to wildlife once it has established as it will be managed through the HCMP specifically to provide greater biodiversity value than existing.
	Residual effects and monitoring	With the specified mitigation applied the magnitude of change on the semi-improved grassland will be **Low**. With the new area of semi-improved grassland to be created there is likely to be **direct**, **permanent**, **long-term** effects on the semi-improved grassland within the Site boundary of **Negligible** significance. Following the application of mitigation, the magnitude of change in relation to indirect impacts remains **Low,** and indirect impacts will be **Negligible.** Post-construction monitoring will be carried out to ensure that the new habitat creation provided as mitigation for effects (both those of an ecological nature and those associated with other technical disciplines) is established and then maintained successfully. This will focus on the botanical component, on the basis that the successful implementation of this will have associated benefits for the animal species that they support. Procedures for monitoring will be set out in the HCMP.
Tall ruderal	Potential effects	Direct – Habitat loss through vegetation clearance. The habitat is considered to be of **Local (Low)** value. As tall ruderal is present throughout the Wider Site, the magnitude of change, prior to mitigation, is **Low**. Therefore there is likely to be a **direct, permanent, long-term** effect of **Minor adverse** significance. Indirect – Tall ruderal habitat could also be affected during construction through indirect impacts such as non-chemical pollution (dust, noise and lighting). The magnitude of change,

Receptor	Potential Significant Effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
		prior to mitigation, is **Low**. Therefore there is likely to be an **indirect, temporary, short-term** effect of **Minor adverse** significance.
	Additional (secondary and tertiary) mitigation	Mitigation measures for the retained areas will be controlled through implementation of an HCMP and CEMP, which will include for example measures to limit non-chemical pollution such as dust suppression and removal of litter generated during construction. Measures implemented to mitigate impacts on woodland habitat will also benefit tall ruderal habitat. Additional landscape planting will be created to replace the loss of valuable habitats. Habitat loss will be compensated for within the Landscape and Biodiversity Mitigation Area, which will contain broadleaved woodland, rough neutral grassland, enhanced hedgerows and four new ponds designed for great crested newts, with associated hibernacula and refugia. The Landscape and Biodiversity Mitigation Area will be managed through the HCMP specifically to provide greater biodiversity value than existing.
	Residual effects and monitoring	With the specified mitigation applied, the magnitude of change on tall ruderal habitat remains **Low**. It is anticipated that tall ruderal will colonise small areas of the new semi-improved grassland, which will offset the loss of that which is present underneath the works footprint. As such there is likely to be **direct**, **temporary**, **long-term** effects on tall ruderal within the Site boundary of **Negligible** significance. Following the application of mitigation, the magnitude of change in relation to indirect impacts remains **Low,** and indirect impacts will be of **Negligible** significance. Post-construction monitoring will be carried out to ensure that the new habitat creation provided as mitigation for effects (both those of an ecological nature and those associated with other technical disciplines) is established and then maintained successfully. This will focus on the botanical component, on the basis that the successful implementation of this will have associated benefits for the animal species that they support. Procedures for monitoring will be set out in the HCMP.
	Potential significant effects	Indirect only – No ditches are to be lost as part of the Proposed Development. The habitats are considered to be of **Local (Low)** significance. The habitat could be affected during construction through indirect impacts such as non-chemical pollution (dust, noise and

Receptor	Potential Significant Effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
Standing water – ditches		lighting). The magnitude of change, prior to mitigation, is **Low**. Therefore there is likely to be an **indirect, temporary, short-term** effect of **Minor adverse** significance.
	Additional (secondary and tertiary) mitigation	Mitigation measures for the retained areas will be controlled through implementation of an HCMP and CEMP, which will include for example measures to limit non-chemical pollution such as measures to suppress dust or to remove litter generated during construction. Measures implemented to mitigate impacts on woodland habitat will also benefit ditches, such as pollution prevention measures.
	Residual effects and monitoring	Following the application of mitigation, the magnitude of change in relation to indirect impacts remains **Low,** and indirect impacts will be **Negligible**. No monitoring for ditches will be required.
Running water - streams	Potential significant effects	Indirect only - No streams are to be lost as part of the Proposed Development. The habitats are considered to be of **Local (Low)** significance. The habitat could be affected during construction through indirect impacts such as non-chemical pollution (dust, noise and lighting). The magnitude of change, prior to mitigation, is **Low**. Therefore there is likely to be an **indirect, temporary, short-term** effect of **Minor adverse** significance.
	Additional (secondary and tertiary) mitigation	Mitigation measures for the retained areas will be controlled through implementation of an HCMP and CEMP, which will include for example measures to limit non-chemical pollution such as measures to suppress dust or to remove litter generated during construction. Measures implemented to mitigate impacts on woodland habitat will also benefit streams, such as pollution prevention measures.
	Residual effects and monitoring	Following the application of mitigation, the magnitude of change in relation to indirect impacts remains **Low,** and indirect impacts will be **Negligible**. No monitoring for streams will be required.
Protected Species		
Great crested newts	Potential significant effects	There will be clearance of terrestrial habitats used by great crested newts for hibernation and foraging purposes within 500m of the pond known to contain breeding great crested newts. The Proposed Development will replace two ponds in the south-west of the Proposed Works Area (Ponds 10 and 11) with a stormwater holding pond, which will likely

Receptor	Potential Significant Effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
		be unsuitable for amphibians Previous surveys of Ponds 10 and 11 have shown they contain a medium population of great crested newts. The Proposed Development will not result in the loss of any other ponds at the Wider Site as these are situated within the retained area. Great crested newts are considered to be of **National** (**High)** value. In the absence of mitigation there will be direct and indirect effects on great crested newts including: • Direct mortality: Great crested newts may be encountered within suitable terrestrial habitats within 500m of the known great crested newt breeding ponds. As such, works within these areas have the potential to injure and/or kill great crested newts. The magnitude of change, prior to mitigation, is **High**. Therefore, there is likely to be a **direct, long-term, permanent** effect on great crested newts within the Study Area of **Major adverse** significance. • Indirect habitat clearance and fragmentation: Construction works close to the great crested newt populations will occur at all areas to the north of the retained ponds. No ponds are located to the north, but the woodland and scrub habitats will provide suitable terrestrial habitats for hibernation and foraging. There is a substantial area of woodland that surrounds the ponds, so habitat loss to the north is not considered significant to great crested newts. The magnitude of change, prior to mitigation is **Medium** in respect to great crested newt foraging and hibernation habitat. Therefore, there is likely to be an **indirect, long-term, permanent** effect on the loss of hibernation and foraging habitat within the Study Area of **Moderate adverse** significance. • Indirect: non-chemical pollution (noise and lighting) on the areas of retained woodland and ponds to the south. The magnitude of change, prior to mitigation, is **Low**. Therefore, there is likely to be an **indirect, temporary** and **short-term** effect of **Moderate adverse** significance.
	Additional (secondary and tertiary) mitigation	The successful implementation of mitigation, under an appropriate European protected species mitigation licence with respect to great crested newts, will reduce the likelihood of direct mortality impacts. Mitigation techniques such as: • The great crested newt European protected species licence will include the creation of four new ponds (to replace Ponds 10 and 11), hibernacula and log piles, as well as areas

Receptor	Potential Significant Effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
		of rough grassland, scrub, hedgerows and woodland to provide greater quality habitat for great crested newts at the site. This will maintain the favourable conservation status of the species. • A great crested newt translocation, phased vegetation clearance, installing exclusion fencing, site supervision and habitat restoration would safeguard great crested newts and prevent the incidental injury or mortality of animals; • The retained ponds will be protected through fencing of the retained area during construction, and work to convert Pond 10 and Pond 11 to a stormwater holding pond will be supervised; • Appointment of an ecological clerk of works to oversee ecologically sensitive activities during construction; • An HCMP will include measures to protect the retained ponds, for example by limiting non-chemical pollution through measures to suppress dust or to remove litter generated during construction; • Habitat creation that is suitable for great crested newts will include ponds, neutral grassland (where left as rough grassland), and broadleaved woodland. After these habitats have established, they will be of greater benefit to some species, including great crested newts; and • Night-time lighting during construction phases should be undertaken in accordance with a lighting management plan to avoid ecologically sensitive areas adjacent to the working areas. This will reduce the impact on nocturnal animals on the surrounding environment. Noise impacts and mitigation are discussed in **Volume 2, Chapter 10: Noise and vibration**. Air quality impacts and mitigation are discussed in **Volume 2, Chapter 6: Air Quality**.
	Residual effects and monitoring	With the specified mitigation applied, there will be a **Low** magnitude of change. Therefore, according to the criteria within the significance matrix, there will be a **Moderate adverse** residual impact in the short term. However, based on the nature of mitigation proposed, specifically the new habitat creation and enhancement, and based on professional judgement in accordance with the methodology set out earlier in this chapter, the long-term,

Receptor	Potential Significant Effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
		permanent residual impacts are not likely to be significant. The residual direct and indirect impacts on great crested newts are therefore assessed as of **Negligible** significance. Monitoring of existing ponds and newly created ponds, with habitat management will be undertaken as part of the existing and new great crested newt licences, involving population class assessment surveys.
Bats – roosting (buildings)	Potential significant effects	Bats are considered to be of **Local (Low)** value. In the absence of mitigation there will be direct and indirect effects on roosting bats (buildings) including: Direct: mortality from construction activities involving building demolition and renovation. Three confirmed roosts within buildings will be lost as a result of the Proposed Development. Building 7, which contained one roost will be demolished, and Padeswood Hall will be demolished, which contained two roosts. As all three roosts were in use by single common pipistrelles it is considered the loss of these buildings would not affect the favourable conservation status of the species in the local area. Roosting bats in buildings are of **Local (Low)** value and the magnitude of change, prior to mitigation, is **High**. Therefore, there is likely to be a **direct, long-term, permanent effect** on the loss of potential roosts within the Study Area of **Minor adverse** significance. Indirect: roosting bats in nearby buildings could also be disturbed during construction through indirect impacts such as non-chemical pollution (dust, noise and lighting). The magnitude of change, prior to mitigation, is **Low**. In the absence of mitigation there may be **indirect, short term, temporary** effects of **Minor adverse** significance.
	Additional (secondary and tertiary) mitigation	Mitigation for roosting bats in confirmed roosts will be detailed in a mitigation licence acquired from Natural Resources Wales. Works will need to be undertaken under a precautionary working method statement. This will ensure no direct bat mortality occurs in the unlikely event that a bat is found roosting in the buildings. The reasonable avoidance measures will also apply to buildings with hibernation potential, and to buildings which could not be inspected internally, on a precautionary basis. As well as this, night-time lighting during construction phases should be undertaken in accordance with a lighting management plan to avoid ecologically sensitive areas adjacent to the working areas. This will reduce the impact on bats within the surrounding environment.

Receptor	Potential Significant Effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
		The Study Area will be enhanced post construction through the installation of new roosting opportunities (e.g. bat boxes) for bats across the Proposed Development, with emphasis on incorporating roost sites in building design. Bat box details will be incorporated into the HCMP.
	Residual effects and monitoring	With the specified mitigation applied, the magnitude of change is **Medium** reducing to **Low** as the Landscape and Biodiversity Mitigation Area becomes established. As such, there is likely to be a direct, long term, permanent residual impact of **Negligible adverse** significance on roosting bats. Following the application of mitigation, the magnitude of change in relation to indirect impacts remains **Low**, and indirect impacts will be **Negligible.** No monitoring of buildings for roosting bats will be required.
Bats – roosting (trees)	Potential significant effects	No roosting bats were observed in any of the trees during the surveys and there was no evidence of roosting within recorded features. Roosting bats in trees are considered to be of **Local (Low)** value. The potential significant effects of the Proposed Development on the loss of roosting habitat is described below. Direct: Given the number of trees that are expected to be removed as part of the Proposed Development, (including three trees with high roosting potential, and 16 trees with moderate roosting potential) it is considered that roosting bats in trees are of **Local (Low)** value. The magnitude of change, prior to mitigation, is **High**. Therefore, in the absence of mitigation there is likely to be a **direct, long-term, permanent** effect on the loss of potential roosting habitat within the Study Area of **Moderate adverse** significance. Indirect: roosting bats in nearby trees could also be disturbed during construction through indirect impacts such as non-chemical pollution (dust, noise and lighting). The magnitude of change, prior to mitigation, is **Low**. In the absence of mitigation there may be **indirect, short term, temporary** effects of **Minor adverse** significance.
	Additional (secondary and tertiary) mitigation	Mitigation for roosting bats in confirmed roosts will be detailed in a mitigation licence acquired from Natural Resources Wales.

Receptor	Potential Significant Effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
		Also, as advised in the Bat Conservation Trust Good Practice Guidelines[27] further bat surveys of low potential trees are not required. For all trees with high, moderate and low potential, precautionary measures (e.g. inspection of the potential roosting features prior to felling and a soft fell of the tree) will be undertaken during felling or pruning activities. The inspection will be undertaken by a licensed ecologist, features will be inspected with an endoscope, where possible. If an endoscopic examination is not possible the tree will be felled in sections; any sections containing features suitable for bats will be lowered and examined at ground level. If considered appropriate by the ecologist the tree section will be left at ground level on the ground with the potential roost feature facing up for 24 hours so that any bats not found during the endoscopic examination can leave of their accord. If bats are found at any stage the works will stop and Natural Resources Wales will be consulted; if necessary a mitigation licence will be applied for. Mitigation measure for indirect impacts on adjacent trees will be controlled through implementation of an HCMP to include: • Night-time lighting during construction phases should be undertaken in accordance with a lighting management plan to avoid ecologically sensitive areas. This will reduce the impact on nocturnal animals on the surrounding environment. Noise impacts and mitigation are discussed in **Volume 2, Chapter 10: Noise and vibration**. Air quality impacts and mitigation are discussed in **Volume 2, Chapter 6: Air Quality**. • The Wider Site will be enhanced post-construction through the installation of new roosting opportunities (e.g. bat boxes) for bats across the Proposed Development. Bat box details will be incorporated into the HCMP.
	Residual effects and monitoring	With the specified mitigation applied, the magnitude of change is **Medium** reducing to **Low** as the Landscape and Biodiversity Mitigation Area becomes established. As such, there is likely to be direct, long term, permanent effects of **Negligible adverse** significance on roosting bats (trees).

[27] https://cdn.bats.org.uk/uploads/pdf/Resources/For-professionals/Bat-Survey-Guidelines-23-FINAL-NO-PRINT-10.10.23.pdf?v=1696925348&_gl=1*156fmx*_ga*OTIwMDAxNzI3LjE3MDc5OTQzNzM.*_ga_G28378TB9V*MTcwNzk5NDM3My4xLjEuMTcwNzk5NDQ4OS4wLjAuMA..

Receptor	Potential Significant Effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
		Following the application of mitigation, the magnitude of change in relation to indirect impacts remains **Low**, and indirect impacts will be **Negligible**. No monitoring of trees for roosting bats will be required.
Badgers	Potential significant effects	Surveys found evidence of badger activity in the area surrounding one badger sett, within 30m of the ancillary works of the Proposed Development. The badger sett is therefore considered active and the badger population is of **Local (Low)** value. Direct: If the sett is active and requires closure, there will be a direct effect on badgers. The magnitude of change, prior to mitigation, is **High**. Therefore, in the absence of mitigation there is likely to be a **direct, short-term, temporary** effect on the sett of **Moderate adverse** significance. Indirect: Noise and vibration associated with construction related activities within 30m of the sett could disturb badgers using the sett (piling and breaking of concrete can however have impacts above 30m). Light spill and the temporary loss of badger habitat to accommodate construction may adversely impact badgers throughout the Proposed Works Area. The magnitude of change, prior to mitigation, for indirect impacts is **Low**. In the absence of mitigation there may be **indirect, short term, temporary** effects of **Negligible adverse** significance.
	Additional (secondary and tertiary) mitigation	If the sett is found to be inactive after monitoring, the sett will be closed (filled in/collapsed/meshed over) before works commence. If the sett is confirmed to be active, detailed mitigation will be implemented under a licence acquired from Natural Resources Wales. Badgers will be excluded from the sett between 1 July and 30 November (inclusive) to enable works within 30m. This will involve placing one-way gates over sett entrances, placing wiring over the ground to prevent the badgers digging back in and monitoring until no badger has been shown to enter the sett for 21 days. If badgers dig back into the sett the 21 days of monitoring will be restarted. If the sett is considered to be a main sett, an artificial sett will be constructed. The artificial sett will be monitored and only when evidence of badger usage has been observed will badgers be excluded from the existing main sett.

Receptor	Potential Significant Effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
		A pre-construction badger survey will be undertaken within six months of the start of construction phase to ensure no other setts have been established as they are a highly mobile and opportunistic species.
	Residual effects and monitoring	With the specified mitigation applied the magnitude of change on badgers will be **Low**. There is therefore likely to be direct, short-term effects on badgers of **Minor adverse** significance. Direct, long-term impacts on badgers will be negligible. Following the application of mitigation, the magnitude of change in relation to indirect impacts remains **Low**, and indirect impacts will be **Negligible**. Monitoring of badgers will be implemented as part of the Natural Resources Wales licence.

Operational phase

5.7.7 Potential impacts on ecological features during the operation include:

- Disturbance of species due to increased presence of people, vehicles and typical uses and activities e.g. noise, vibration and artificial lighting;
- Disturbance of species due to increased access and road traffic;
- Disturbance of species at nearby local WS;
- Damage to mitigation work through accident or acts of vandalism;
- Implementation of landscape design and habitat management;
- Site operation and management e.g. maintenance operations and industrial processes; and
- Rainwater runoff from car-parks and other areas of hard-standing.

5.7.8 In addition, there are potential non-standard operations e.g. one-off incidents and accidents.

5.7.9 An assessment of the potential significant effects, additional mitigation, residual effects and monitoring during operation has been undertaken in **Table 5.9.**

Table 5.9 Assessment of potential significant effects, additional mitigation, residual effects and monitoring during operation

Receptor	Potential significant effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
Habitats		
Broadleaved and mixed plantation woodland	Potential significant effects	The adjacent and nearby woodland could be affected during operation through indirect impacts such as non-chemical pollution (dust, noise, littering and lighting). The trees are considered to be of **Local (Low)** value and the magnitude of change, prior to mitigation, is **Low**. Therefore, there is likely to be an **indirect, long-term, permanent** effect on the woodlands adjacent to the Proposed Development of **Minor adverse** significance.
	Additional (secondary and tertiary) mitigation	Measures to limit non-chemical pollution during operation will be detailed in an HCMP, such as a sensitive lighting scheme and measures for the responsible removal of litter generated on the Wider Site.
	Residual effects and monitoring	The magnitude of change remains Low. With the application of mitigation, there is likely to be **no indirect** residual impact to broadleaved and mixed plantation woodland and the significance is therefore **Negligible**. Post-construction monitoring will be carried out to ensure that the new habitat creation provided as mitigation for effects (both those of an ecological nature and those associated with other technical disciplines) is established and then maintained successfully. This will focus on the botanical component, on the basis that the successful implementation of this will have associated benefits for the animal species that they support.
Dense and scattered scrub	Potential significant effects	Dense and scattered scrub adjacent to the Proposed Development could be affected during operation through indirect impacts such as non-chemical pollution (dust, noise, littering and lighting). Dense and scattered scrub is considered to be of **Local (Low)** value and the magnitude of change, prior to mitigation, is **Low**. Therefore, there is likely to be

Receptor	Potential significant effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
		an **indirect, long-term, permanent** effect on dense and scattered scrub of **Minor adverse** significance.
	Additional (secondary and tertiary) mitigation	Measures to limit non-chemical pollution during operation will be detailed in an HCMP, such as a sensitive lighting scheme and measures for the responsible removal of litter generated on the Wider Site.
	Residual effects and monitoring	The magnitude of change remains **Low**. With the application of mitigation, there is likely to be no indirect residual impact to dense and scattered scrub, and the significance is **Negligible**. No monitoring for dense and scattered scrub will be required.
Broadleaved trees (scattered and lines of)	Potential significant effects	Broadleaved trees adjacent to the Proposed Development could be affected during operation through indirect impacts such as non-chemical pollution (dust, noise and lighting). These trees are considered to be of **Local (Low)** value and the magnitude of change, prior to mitigation, is **Low**. Therefore, there is likely to be an **indirect, long-term, permanent** effect on scattered and lines of broadleaved trees of **Minor adverse** significance.
	Additional (secondary and tertiary) mitigation	Measures to limit non-chemical pollution during operation, such as a sensitive lighting scheme, will be detailed in an HCMP.
	Residual effects and monitoring	The magnitude of change remains **Low**. With the application of mitigation, there is likely to be no indirect residual impact to scattered and linear broadleaved trees and the significance is **Negligible**. Post-construction monitoring will be carried out to ensure that the new habitat creation provided as mitigation for effects (both those of an ecological nature and those associated with other technical disciplines) is established and then maintained successfully. This will focus on the botanical component, on the basis that the successful implementation of this will have associated benefits for the animal species that they support.

Receptor	Potential significant effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
Semi-improved grassland	Potential significant effects	Semi-improved grassland adjacent to the Proposed Development could be affected during operation through indirect impacts such as non-chemical pollution (dust, noise, littering and lighting). Semi-improved grassland is considered to be of **Local (Low)** value and the magnitude of change, prior to mitigation, is **Low**. Therefore, there is likely to be an **indirect, long-term, permanent** effect on semi-improved grassland of **Minor adverse** significance.
	Additional (secondary and tertiary) mitigation	Measures to limit non-chemical pollution during operation, such as a sensitive lighting scheme, will be detailed in an HCMP.
	Residual effects and monitoring	The magnitude of change remains **Low**. With the application of mitigation, there is likely to be no indirect residual impact to semi-improved grassland and the significance is **Negligible**. Post-construction monitoring will be carried out to ensure that the new habitat creation provided as mitigation for effects (both those of an ecological nature and those associated with other technical disciplines) is established and then maintained successfully. This will focus on the botanical component, on the basis that the successful implementation of this will have associated benefits for the animal species that they support.
Tall ruderal	Potential significant effects	Tall ruderal habitat adjacent to the development could be affected during operation through indirect impacts such as non-chemical pollution (dust, noise and lighting). Tall ruderal is considered to be of **Site (Low)** value and the magnitude of change, prior to mitigation, is **Low**. Therefore, there is likely to be an **indirect, long-term, permanent** effect on tall ruderal of **Minor adverse** significance.
	Additional (secondary and tertiary) mitigation	Measures to limit non-chemical pollution during operation, such as a sensitive lighting scheme, will be detailed in an HCMP.

Receptor	Potential significant effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
	Residual effects and monitoring	The magnitude of change remains **Low**. With the application of mitigation, there is likely to be no indirect residual impact to tall ruderal and the significance is **Negligible**. Post-construction monitoring will be carried out to ensure that the new habitat creation provided as mitigation for effects (both those of an ecological nature and those associated with other technical disciplines) is established and then maintained successfully. This will focus on the botanical component, on the basis that the successful implementation of this will have associated benefits for the animal species that they support.
Standing water - ditches	Potential significant effects	The ditch to the east of the Proposed Development could be affected during operation through indirect impacts such as non-chemical pollution (dust, noise, littering and lighting). The ditch is considered to be of **Local (Low)** value and the magnitude of change, prior to mitigation, is **Low**. Therefore, there is likely to be an **indirect, long-term, permanent** effect on ditches of **Minor adverse** significance.
	Additional (secondary and tertiary) mitigation	Measures to limit non-chemical pollution during operation, such as a sensitive lighting scheme and silt prevention, will be detailed in an HCMP.
	Residual effects and monitoring	The magnitude of change remains **Low**. With the application of mitigation, there is likely to be no indirect residual impact to ditches and the significance is **Negligible**. No monitoring for ditches will be required.
Running water - streams	Potential significant effects	The stream adjacent south of the Proposed Development could be affected during operation through indirect impacts such as non-chemical pollution (dust, noise, littering and lighting). The stream is considered to be of **Local (Low)** value and the magnitude of change, prior to mitigation, is **Low**. Therefore, there is likely to be an **indirect, long-term, permanent** effect on streams of **Minor adverse** significance.

Receptor	Potential significant effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
	Additional (secondary and tertiary) mitigation	Measures to limit non-chemical pollution during operation, such as a sensitive lighting scheme and silt run-off prevention, will be detailed in an HCMP.
	Residual effects and monitoring	The magnitude of change remains **Low**. With the application of mitigation, there is likely to be no indirect residual impact to streams and the significance is **Negligible**. No monitoring for streams will be required.
Protected species		
Great crested newts	Potential significant effects	Indirect, non-chemical pollution (noise and lighting) on the areas of retained woodland and ponds to the south may adversely impact great crested newts. Also, ongoing site operations including vehicle movements may lead to mortalities. Great crested newts are considered to be of **National (High)** value and the magnitude of change, prior to mitigation, is **Low**. Therefore, there are likely to be **indirect**, **permanent** and **long-term** effects of **Moderate adverse** significance.
	Additional (secondary and tertiary) mitigation	Measures to limit non-chemical pollution during operation will be detailed in an HCMP and agreed with Natural Resources Wales as part of the European protected species licence. Night-time lighting during the operational phase should be undertaken in accordance with a lighting management plan to avoid ecologically sensitive areas adjacent to the Proposed Works Area. This will reduce the impact on nocturnal animals on the surrounding environment. Noise impacts and mitigation are discussed in **Volume 2, Chapter 10: Noise and vibration**. Air quality impacts and mitigation are discussed in **Volume 2, Chapter 6: Air Quality**. Measures set out in the current EPS licence to manage great crested newts entering the existing operational area within the Wider Site will be extended to the Proposed Development to prevent mortalities from vehicle movements. The new stormwater pond will be fenced permanently to prevent amphibians becoming trapped.

Receptor	Potential significant effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
	Residual effects and monitoring	With the specified mitigation applied, there will be **Low** magnitude of change. Therefore, according to the criteria within the significance matrix, there will be a moderate adverse impact in the short term. However, based on the nature of mitigation proposed and on professional judgement, as set out in the methodology, the long-term, permanent residual impacts are not likely to be significant. The residual direct and indirect impacts on great crested newts are therefore of **Negligible** significance. Monitoring of the great crested newt population will be undertaken as part of the existing great crested newt licence and/or new EPS licence covering translocation, which will involve population class assessment surveys.
Bats – roosting (buildings)	Potential significant effects	The buildings within which bats have been identified in surveys will have been demolished or refurbished during the construction phase, therefore, there are no expected operational impacts.
Bats – roosting (trees)	Potential significant effects	Six moderate potential trees are likely to be retained on the western edge of the Proposed Works Area. Roosting bats in trees have a **Local (Low)** value. Direct: The trees may need to be pruned or reduced in height at the operational stage to ensure the safety of the adjacent proposed access road. The magnitude of change due to pruning prior to mitigation, is **Medium**. Therefore, in the absence of mitigation there may **be direct**, **short term**, **temporary** effects (features will remain as they are but bats may be disturbed) on the trees with moderate potential for roosting bats, of **Minor adverse** significance. Indirect: The same trees are likely to be impacted by increased permanent lighting from the Proposed Development. The magnitude of change from this lighting, prior to mitigation, is **Medium**. In the absence of mitigation there may be indirect, long term, permanent impacts of **Minor adverse** significance.
	Additional (secondary and tertiary) mitigation	Prior to pruning of trees with moderate potential for bats, further surveys will be undertaken on the trees to ensure no roosts are present. An appropriate lighting strategy will be prepared and incorporated into the HCMP. The lighting strategy will be designed in liaison with an ecologist to limit

Receptor	Potential significant effects/Additional (Secondary and Tertiary) Mitigation/Residual Effects and Monitoring	
		external light spill into the edge habitats where the potential trees of value to bats are located. The design principles and technical lighting specifications will follow Bat Conservation Trust Guidance[28].
	Residual effects and monitoring	The magnitude of change remains **Low**. With the application of mitigation, there is likely to be no indirect residual impact to bats in roosting trees and the significance is **Negligible.** No monitoring of trees for roosting bats will be required.
Badgers	Potential significant effects	Indirect, non-chemical pollution (noise and lighting) on adjacent areas of suitable foraging habitat may adversely impact badgers. Badgers are considered to be of **Local (Low)** value and the magnitude of change, prior to mitigation, is **Low**. Therefore, there are likely to be indirect, **permanent** and **long-term** effects of **Minor adverse** significance.
	Additional (secondary and tertiary) mitigation	Measures to limit non-chemical pollution during operation which could affect badgers will be detailed in an HCMP. For example, night-time lighting during the operational phase should be undertaken in accordance with a lighting management plan to avoid ecologically sensitive areas adjacent to the Proposed Works Area. This will reduce the impact on nocturnal animals on the surrounding environment. Noise impacts and mitigation are discussed in **Volume 2, Chapter 10: Noise and vibration**. Air quality impacts and mitigation are discussed in **Volume 2, Chapter 6: Air Quality**.
	Residual effects and monitoring	The magnitude of change remains **Low.** With the application of mitigation, there is likely to be no indirect residual impact to badgers and the significance is **Negligible**. Monitoring of badgers will be implemented as part of the Natural Resources Wales licence.

[28] https://cdn.bats.org.uk/uploads/pdf/Resources/For-professionals/Bat-Survey-Guidelines-23-FINAL-NO-PRINT-10.10.23.pdf?v=1696925348&_gl=1*156fmx*_ga*OTIwMDAxNzI3LjE3MDc5OTQzNzM.*_ga_G28378TB9V*MTcwNzk5NDM3My4xLjEuMTcwNzk5NDQ4OS4wLjAuMA

Decommissioning phase

5.7.10 As discussed in the introductory sections of the draft Environmental Statement, the Carbon Capture Plant is intended to operate for as long as the existing operational cement works, and therefore decommissioning is not proposed until the ultimate decommissioning of the cement works site. However, as per the request in PEDW's Scoping Direction to consider decommissioning effects, a brief consideration is provided in the event that decommissioning on an earlier timescale were to be required.

5.7.11 The majority of the effects associated with decommissioning would be similar in nature to, but at a reduced scale to construction phase effects. There would be fewer materials, plant, labour and vehicles required during decommissioning when compared to construction. Decommissioning would take place over a shorter duration, and activities would be focused on areas of the Site which at that point would already be developed. Consequently, the magnitude and significance of effects associated with decommissioning would not differ in nature from nor exceed those assessed elsewhere in this chapter in respect of construction. It is therefore not considered necessary to provide a separate detailed assessment of decommissioning related effects.

5.7.12 Decommissioning, if required, would be conducted in accordance with the regulatory and policy environment in place at the time with all required permits and consents being obtained prior to commencement.

Assessment against future baseline

5.7.13 It is anticipated that the future baseline would likely remain largely the same in the absence of the Proposed Development, though it is possible that the great crested newt population could expand into Pond 12 (which returned a negative eDNA result in 2022) and that badgers found in the Wider Site could expand their sett farther into the Proposed Works Area.

5.8 Opportunities for environmental enhancement

5.8.1 Environmental enhancement will be delivered through the creation of the Landscape and Biodiversity Mitigation Area, which will contain broadleaved woodland, rough neutral grassland, enhanced hedgerows and four ponds designed for great crested newts, with associated *hibernacula* and *refugia*. As indicated during consultation with Flintshire County Council and Natural Resources Wales, the overall habitat areas lost are to be compensated and subsequently enhanced through management to be brought to a condition exceeding the current baseline.

5.8.2 The management of the Landscape and Biodiversity Mitigation Area and ponds will be undertaken as a modification of the existing great crested newt licence on the Wider Site and through the implementation of an HCMP. The Landscape and Biodiversity Mitigation Area is feasible and deliverable and has been designed with

and agreed with the Applicant, Flintshire County Council and Natural Resources Wales.

5.8.3 Further information on the Landscape and Biodiversity Mitigation Area is provided in the Green Infrastructure Statement, submitted as part of the DNS application.

5.9 Difficulties and uncertainties

5.9.1 No difficulties or uncertainties were encountered during the assessment of biodiversity.

5.10 Assessment summary

5.10.1 **Table 5.10** provides a summary of the findings of the assessment.

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Table 5.10 Summary of residual biodiversity impacts following mitigation

Receptor	Sensitivity (Value) at Site Level	Description of Impact	Magnitude of Residual Change	Long Term Residual Impact	Potential for Significant Effect
Construction Phase					
Habitats					
Broadleaved and mixed plantation woodland	Local (Low)	Direct impacts due to habitat loss, degradation and fragmentation through woodland habitat clearance. Indirect adverse impacts such as non-chemical pollution (dust, noise and lighting).	Low	Negligible	No
Dense and scattered scrub	Local (Low)	Habitat loss, degradation and fragmentation through scrub habitat clearance. Indirect adverse impacts such as non-chemical pollution (dust, noise and lighting).	Low	Negligible	No
Broadleaved trees (scattered and lines of)	Local (Low)	Habitat loss, degradation and fragmentation through tree felling. Indirect damaging impacts such as non-chemical pollution (dust, noise and lighting).	Low	Negligible	No
Semi-improved grassland	Local (Low)	Habitat loss, degradation and fragmentation through semi-improved grassland habitat clearance. Indirect damaging impacts such as non-chemical pollution (dust, noise and lighting).	Low	Negligible	No
Tall ruderal	Local (Low)	Habitat loss, degradation and fragmentation through tall ruderal habitat clearance. Indirect damaging impacts such as non-chemical pollution (dust, noise and lighting).	Low	Negligible	No

Receptor	Sensitivity (Value) at Site Level	Description of Impact	Magnitude of Residual Change	Long Term Residual Impact	Potential for Significant Effect
Standing water - ditches	Local (Low)	Indirect impacts such as non-chemical pollution (dust, noise and lighting).	Low	Negligible	No
Running water - streams	Local (Low)	Indirect impacts such as non-chemical pollution (dust, noise and lighting).	Low	Negligible	No
Protected species					
Great crested newt	National (High)	Direct mortality from construction activities, habitat clearance and fragmentation and indirect damaging impacts such as non-chemical pollution (dust and lighting).	Low	Negligible	No
Roosting bats (buildings)	Local (Low)	Direct mortality from construction activities involving building demolition and renovation. Three confirmed roosts within buildings will be lost as part of the Proposed Development. Roosting bats in nearby buildings could also be disturbed during construction through indirect impacts such as non-chemical pollution (dust, noise and lighting).	Low	Negligible	No
Roosting bats (trees)	Local (Low)	Direct mortality from construction activities involving tree felling. Roosting bats in nearby trees could also be disturbed during construction through indirect impacts such as non- chemical pollution (dust, noise and lighting).	Low	Negligible	No
Badgers	Local (Low)	Noise and vibration associated with construction related activities within 30m of the sett could disturb badgers using the sett. Light spill and the temporary loss of badger	Low	Negligible	No

Receptor	Sensitivity (Value) at Site Level	Description of Impact	Magnitude of Residual Change	Long Term Residual Impact	Potential for Significant Effect
		habitat to accommodate construction may adversely impact badgers throughout the Study Area.			
Operational Phase					
Habitats					
Broadleaved and mixed plantation woodland	Local (Low)	The adjacent and nearby woodland could be affected during operation through indirect impacts such as non-chemical pollution (dust, noise and lighting).	Low	Negligible	No
Dense and scattered scrub	Local (Low)	The adjacent and nearby woodland could be affected during operation through indirect impacts such as non-chemical pollution (dust, noise and lighting).	Low	Negligible	No
Broadleaved trees (scattered and lines of)	Local (Low)	Adjacent and nearby broadleaved trees could be affected during operation through indirect impacts such as non-chemical pollution (dust, noise and lighting).	Low	Negligible	No
Semi-improved grassland	Local (Low)	Adjacent and nearby semi-improved grassland could be affected during operation through indirect impacts such as non-chemical pollution (dust, noise and lighting).	Low	Negligible	No
Tall ruderal	Site (Low)	Adjacent and nearby tall ruderal habitat could be affected during operation through indirect impacts such as non-chemical pollution (dust, noise and lighting).	Low	Negligible	No

Receptor	Sensitivity (Value) at Site Level	Description of Impact	Magnitude of Residual Change	Long Term Residual Impact	Potential for Significant Effect
Standing water - ditches	Local (Low)	The ditch to the east of the Proposed Development could be affected during operation through indirect impacts such as non-chemical pollution (dust, noise and lighting).	Low	Negligible	No
Running water - streams	Local (Low)	The stream adjacent south of the Proposed Development could be affected during operation through indirect impacts such as non-chemical pollution (dust, noise and lighting).	Low	Negligible	No
Protected Species					
Great crested newts	National (High)	Indirect, non-chemical pollution (noise and lighting) on the areas of retained woodland and ponds to the south may adversely impact great crested newts.	Low	Negligible	No
Bats – roosting (buildings)	Local (Low)	The buildings will have been demolished or refurbished during the construction phase, therefore, there are no expected operational impacts.	N/A	N/A	No
Bats – roosting (trees)	Local (Low)	Indirect, non-chemical pollution (noise and lighting) on retained trees adjacent to and nearby the Proposed Development. The trees may need to be pruned or reduced in height at the operational phase to ensure the safety of the adjacent proposed access road which may disturb bats.	Low	Negligible	No

Receptor	Sensitivity (Value) at Site Level	Description of Impact	Magnitude of Residual Change	Long Term Residual Impact	Potential for Significant Effect
Badgers	Local (Low)	Indirect, non-chemical pollution (noise and lighting) on adjacent areas of suitable foraging habitat may adversely impact badgers.	Low	Negligible	No

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