



Ecological Impact Assessment

Kirkby, Proposed Battery Energy Storage System

Pivoted Power LLP

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Basis of Report

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Acronyms and Abbreviations

BESS	Battery Energy Storage System
CEMP	Construction and Environmental Management Plan
EA	Environment Agency
EclA	Ecological Impact Assessment
eDNA	Environmental Deoxyribonucleic acid
GCN	Great crested newt
HDD	Hydraulic Directional Drilling
IAA	Important Invertebrate Areas
LERN	Lancashire Environment Record Network
LGS	Local Geological Sites
LNR	Local Nature Reserve
LWS	Local Wildlife Sites
MBB	MerseySide BioBank
NGR	National Grid reference
NIA	Nature Improvement Area
PEA	Preliminary Ecological Appraisal
SLR	SLR consulting Ltd
SSSI	Site of Special Scientific Interest
UKHab	UK Habitat Classification Survey



1.0 Introduction

1.1 Background

SLR Consulting Ltd (SLR) was commissioned by Pivoted Power LLP to undertake an Ecological Impact Assessment (EclA) to support a planning application for its proposed construction of a new Battery Energy Storage System (BESS) at Kirkby, located North of Cut Lane, Liverpool, L33 3AJ (centroid National Grid reference (NGR): SJ 44510 97577). The plan of the development footprint is provided in **Appendix A**. The Proposed Development consists of a Battery Energy Storage System Facility (BESS) compound with an access track to the south and a cable route to connect the Site to Kirkby electricity substation.

The main objective of this report is to identify the potential ecological effects which may result from development of this nature, on the Site and the wider area.

1.2 Site Description

The sSite is located to the West of the Town of Kirkby, 640m North of the major roadway A580 'East Lancashire Road' (centroid National Grid reference (NGR): SJ 44510 97577), hereafter referred to as 'the Site'. The Red Line Boundary of the Site can be seen in **Appendix A**, Drawing KIR-EDFR-BESS-LAND-PLN-150.05 Site Location Plan, along with the proposed cable route. The Site is c3.34 Ha in size.

A large proportion of the land has been utilised for mineral extraction and cleared for the future establishment of a fishing pond where the vast majority of the Site vegetation has been removed and the topsoil has been stripped. Historical imagery on Google Earth suggests that the vegetation removal started in 2019. Also present adjacent to the Site is a large industrial building and several industrial containers. Lining the perimeters of the Site are hedgerows.

The surrounding landscapes supports a range of agricultural land utilised for crop production and livestock grazing intersected by further hedgerows with small pockets of woodland present. Further west is a large commercial and industrial area.

1.3 Proposed Development

The Site will be utilised for the construction and operation of a new Battery Energy Storage System (BESS).

The works will likely include the construction of:

- Battery compound comprising of energy blocks with associated cooling systems; transformers; inverters; spares container; switchgear kiosk; control room kiosk; National Grid incomer substation; earthing and auxiliary transformers; and LV board. All units set on concrete slab foundations.
- Security fencing and double leaf site security gate.
- Point of connection cable corridor.
- Private wire cable corridor.
- Landscape planting and perimeter hedge planting.
- CCTV cameras and masts.
- A water tank.
- Access tracks from service road and permeable stone site surfacing around site track and concrete slab foundations.



- Creation of a bioswale.
- A temporary compound in the field to the west of the access track.

The Red Line Boundary of the Site can be seen in **Appendix B**, Drawing KIR-EDFR-BESS-CIV-PLN-300.13 - Site Layout Plan, along with the proposed cable route. The cable route exits the Site to the south via the current access track and then progresses west along Cut Lane to the junction of Molly's Lane and Hewitt's Lane. The route then progresses south down Hewitt's Lane before cutting west through woodland south of Knowsley Pumping Station, crossing Knowsley Brook and progressing west along the outside of the southern edge of the substation. The route will terminate at an intermediate substation.

1.4 Purpose of the Report

This report addresses potential ecological issues arising from the Proposed Development. In summary, the purpose of the EclA is to:

- Describe the baseline data collection and assessment methods used;
- Summarise the baseline ecological conditions;
- Identify and describe potentially significant ecological effects associated with the Proposed Development;
- Outline the design, mitigation and compensation measures required to ensure compliance with nature conservation legislation and to address any potentially significant ecological effects;
- Identify how mitigation, compensation, and enhancement measures will be delivered;
- Provide an assessment of the significance of any residual effects in relation to the effects on biodiversity and the legal and policy implications; and
- Sets out any requirements for post-construction monitoring.

1.5 Evidence of Technical Competence and Experience

This report has been authored by Mark Nelson BA (Hons) MSc, an Associate Ecologist with SLR. Mark is a Member of CIEEM. Mark has over 11 years' experience in consultancy which has included preparing and overseeing assessments for multiple projects, including small and large infrastructure projects, in the UK.

This report has been subject to Quality Assurance review as per SLRs policies by Andy Law CEcol MCIEEM. Andy has over 30 years' experience as an ecologist and has conducted numerous EclAs. Andy is a Natural England licensed bat, dormouse, and great crested newt surveyor.

Surveys were undertaken by Mark Nelson, with the assistance of Toby Bell, Assistant Ecologist, and Isla Nevett, an Interning Ecologist both at SLR Consulting Limited.

1.6 Relevant Legislation and Policy

A summary of legislation and national planning policy relevant to (onshore) biodiversity in England is provided in **Appendix F**. Note that the summary provided is intended for general guidance only and the original policy documents should be consulted for definitive information. Relevant local planning policy has been reviewed and is summarised below.



1.6.1 Knowsley Local Plan: Core Strategy January 2016

The Knowsley Local Plan Core Strategy¹ details one strategy around the conservation of biodiversity. This is Strategy objective 8 and is outlined below.

Strategy Objective 8: Green Infrastructure and Rural Areas

To support and strengthen the role of Knowsley's Green Infrastructure (in rural and urban areas), promote biodiversity, and maintain the character of rural settlements including Cronton, Tarbock and Knowsley Village.

This objective focuses on the role of Knowsley's green and open spaces, in both rural and urban areas. The objective seeks to maintain and enhance the most valuable aspects of these areas, including recognising their value to local flora, fauna and geology, and their positive effect on health and wellbeing through leisure and recreational use. The objective also supports the role of Green Belt areas in maintaining breaks between the urban areas of Knowsley's townships, and the unique landscape settings of Cronton, Tarbock and Knowsley Village, all of which sit within the Green Belt. There is however a requirement to review existing Green Belt boundaries to ensure delivery of Knowsley's development needs, whilst establishing new robust boundaries which ensure remaining Green Belt areas are provided long term protection.

There are further details of relevance to biodiversity and protected species within other policy sections of the plan which are detailed below:

Policy CS1: Spatial Strategy for Knowsley

2) Priorities for the development of Knowsley to 2028 will be to:

- f) Maintain and enhance the Green Infrastructure network, areas of environmental importance and heritage assets.

Policy CS2: Development Principles

Principle 4: Recognise environmental limits, protect and enhance environmental assets, enhance local character and promote quality of place by:

- h) Maintaining or enhancing the quantity and quality of biodiversity and habitats, including potential impacts on nationally and internationally important sites for biodiversity;

Policy CS8: Green Infrastructure

Maintenance and Enhancement of Knowsley's Existing Green Infrastructure

- 1) Knowsley's existing Green Infrastructure and its beneficial functions will be protected, managed and/or enhanced, primarily to:
 - b) Sustain and promote biodiversity (including designated sites, priority habitats and protected and endangered species) in accordance with importance and contribution to ecological networks;
- 2) To achieve the above, planning powers and other interventions will be used to:
 - c) Promote effective movement of wildlife through a network of strategic green links, by protecting, maintaining and improving existing and new open spaces, water courses (including water quality) and biodiversity assets;
 - g) Work in partnership with other districts and relevant bodies at a landscape scale to minimise the impact of development upon Knowsley's existing biodiversity and

¹ <https://localplanmaps.knowsley.gov.uk/documents/knowsley-local-plan-adopted-core-strategy.pdf>



geological assets, and sustain the protection afforded to internationally important sites, including supporting habitat, for biodiversity outside of the borough;

Natural Assets and Biodiversity

The key priorities for natural assets and geology in the Liverpool City Region are:

- To manage the natural assets better – to protect the integrity of nature sites of international importance, and to protect the city region's nature and geodiversity assets; and
- To make sure there is no net loss of these natural assets and to extend and enhance the city region's Ecological Network and natural assets.

Many natural assets occur at a landscape scale and cross local authority boundaries. Neighbouring authorities in Lancashire, Greater Manchester and Cheshire are currently preparing Ecological Networks, which will allow a more integrated approach between Knowsley and adjacent areas. The Liverpool City Region authorities are currently preparing evidence relating to their shared Ecological Network which once agreed will identify strategic and district priorities for habitat creation and enhancement at a landscape scale.

Knowsley's natural assets include the designated nature sites and priority habitats which will form part of the Liverpool City Region Ecological Network once agreed. The hierarchy of designated sites is:

- a) Sites of international nature importance;
- b) Sites of national nature and geological importance; and
- c) Sites of local nature and geological importance.

The Council will not support schemes that will lead to adverse effects on nationally or internationally important wildlife sites, either alone or in combination with other projects and plans. This includes supporting habitat for species that are designation features of Internationally important sites. Any scheme which would be likely to significantly affect a European site, either alone or in combination with other plans and projects, will be subject to an assessment under Part 6 of the Habitat Regulations at project application stage. If it cannot be assured that there would be no adverse effects on site integrity, permission will be refused unless the proposal satisfies the 'no alternatives' and 'Imperative Reasons of Over-Riding Public Interest' tests of the Conservation of Habitats and Species Regulations 2010 (as amended), under which appropriate compensatory measures will need to be secured.

In some circumstances, adequate mitigation and/or compensation for biodiversity loss may be acceptable but incapable of being provided within the application site. In such cases where appropriate, priority will be given to equivalent off site opportunities for such mitigation or, as a last resort, compensation. Such opportunities shall be prioritised in the following order:

- Firstly sites in the immediate locality of and/or within any Core Biodiversity Area (to be defined as part of the Liverpool City Region Ecological Network) near to the application site;
- Secondly, sites in a Nature Improvement Area identified within the borough (to be defined as part of the Liverpool City Region Ecological Network); and lastly
- Sites in a Nature Improvement Area identified outside the borough (to be defined as part of the Liverpool City Region Ecological Network).

Management plans which support the protection of internationally important sites for biodiversity within the wider Liverpool City Region are those which pertain to Mersey Estuary Special Protection Area (SPA)/Ramsar, Ribble & Alt Estuaries SPA/Ramsar, Liverpool Bay SPA, Mersey Narrows and North Wirral Foreshore SPA/Ramsar, Sefton Coast Special Area



of Conservation (SAC), Dee Estuary SPA/SAC/Ramsar and Martin Mere SPA/Ramsar. Strategies and development proposals in Knowsley must mitigate any potential impacts such as:

- disturbance to qualifying bird species (from recreational pressure and other sources);
- deterioration in water quality;
- deterioration in air quality; and
- loss of supporting habitat.

The types of management plans which will need to be considered and supported by Knowsley (together with surrounding districts) are likely to include European Marine Site Management Schemes, the North West River Basin Management Plan and location specific management plans. These will include those relating to locally important water bodies such as the River Alt, Croxteth/Knowsley Brook and Simonswood Brook, Ditton Brook, Dog Clog Brook, Mill Brook and Prescott (Logwood) Brook.

2.0 Methodology

The baseline ecological data was collated by a combination of desk-based study and field surveys consistent with all current standard methodologies and published good practice guidelines².

The survey area for the report is the redline boundary of the Proposed Development (hereby referred to as the Site) including the route required for the Cable connection (hereby referred to as the Cable Route) and a 30 m buffer. This is described by the survey area in Figure 1.

2.1 Zone of Influence

The 'zone of influence' (ZOI) for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This is likely to extend beyond the project Site, for example where there are ecological or hydrological links beyond the Site boundaries.

The ZOI will vary for different ecological features depending on their sensitivity to an environmental change. It is therefore appropriate to identify different ZOI for different features. The features affected include habitats, species, and ecosystems and the processes on which they depend. The ZOI used will be stated for each feature where appropriate.

2.2 Baseline Data Collection

2.2.1 Desk Study

An ecological data search was requested from Merseyside BioBank (MBB) in August 2023, which provided information on statutory and non-statutory sites, species records, and habitats or open space information within a ZOI of approximately 2 km radius of the BESS Site. A further ecological data search was requested from MBB in August 2024, which provided information on statutory and non-statutory sites, species records, and habitats or open space information approximately within a ZOI of 2 km radius of the Cable Route.

The Multi-Agency Geographic Information for the Countryside (MAGIC)³ website was used to assess aerial imagery and OS maps of the Site and surrounding landscape, search for

² CIEEM (2017). *Guidelines for Preliminary Ecological Appraisal. Second Edition.*

³ Magic.defra.gov.uk. (2025) *Magic Map Application*. [online] Available at: <<https://magic.defra.gov.uk/MagicMap.aspx>>



statutory sites, priority habitat (within a ZOI of 2 km of the survey area) and granted mitigation licences. Protected habitat and mitigation licence returns identified from MAGIC are shown in the relevant sections below. Details regarding the statutory sites designation was obtained from Natural England's Designated Sites View database⁴.

The Environment Agency (EA) Catchment Data Explorer⁵ and Ecology and Fish Data Explorer⁶ was used to establish hydrological connectivity and assess ecological condition of watercourses and potential presence of fish, river macrophytes and invertebrates of the Site and surrounding landscape.

The Buglife Important Invertebrate Areas (IAA) Map⁷ was used to assess if the Site was in proximity to places that are known to home to nationally or internationally significant invertebrate populations and their habitats.

The desktop study also included a review of the local planning policy framework, the draft Liverpool City Region Combined Authority (LCR-CA) Nature Recovery Strategy⁸ and relevant sections of the National Planning Policy Framework relevant to nature conservation and trees.

2.2.2 Field Surveys

On 29th June 2023, a site visit was undertaken by Mark Nelson, Associate Ecologist and Toby Bell, Assistant Ecologist. This site visit was to the original proposed site boundary of the BESS, in addition to a 30 m buffer.

On the 3rd October 2023, a further site visit was undertaken in order to survey proposed cable routes by Mark Nelson, accompanied by Isla Nevett an Interning Ecologist at SLR.

A further visit was undertaken on 4th July 2024 to undertake a condition assessment of Knowsley Brook and survey amendments to the proposed cable routes by Mark Nelson.

2.2.2.1 UK Habitat (UKHab) Classification Survey

The survey focused on recording the habitats present and providing an overview of the Site and its potential to support protected species or other species or habitats of ecological significance.

Habitats directly within the Site and within 30 m of the boundary were recorded in the field to prepare a habitat map. The habitats were mapped using the information gathered from the ecological walkover and followed the UK Habitat Survey (UKHab) methodology⁹, the results are provided in **Appendix D**. The Site was mapped using the fine scale minimum mapping unit MMU (25 m², 5 m length), in accordance with the UK Habitat Classification User Manual¹⁰. Habitats that are smaller than the specified area and length are recorded as target notes but not physically mapped. Habitat condition for each habitat was also recorded using

⁴ Designated Sites View. (2022) [online] Available at:
<https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1009640>

⁵ <https://environment.data.gov.uk/catchment-planning/WaterBody/GB112069060610>

⁶ <https://environment.data.gov.uk/ecology/explorer/>

⁷ <https://www.buglife.org.uk/our-work/important-invertebrate-areas/>

⁸ <https://api.liverpoolcityregion-ca.gov.uk/wp-content/uploads/LCRCA-Local-Nature-Recovery-Strategy-2025.pdf>

⁹ The UK Habitat Classification Working Group (May 2018) *The UK Habitat Classification User Manual Version 1.0*.

¹⁰ The UK Habitat Classification Working Group (September 2020) *The UK Habitat Classification User Manual Version 1.1*.



Defra Statutory Biodiversity Metric -Technical Annex 1: Condition Assessment Sheets and Methodology¹¹.

The survey scope was extended to include the recording of field evidence indicating the presence or potential presence of species that could constitute a material consideration in planning terms, such as protected or notable plant or fauna species. Notes of principle habitat types, supported by photographs, were recorded.

2.2.2.2 River Condition Assessment

A River Condition Assessment (RCA) survey is used to assess the type and condition of watercourses present on a site. RCA surveys involve a field survey element and a desk study element¹².

- 1 **Field Survey:** The field surveys are conducted using the "MoRPh" methodology¹³ (Shuker et al., 2017; Gurnell et al., 2019). The survey focuses on collecting data from sub-reaches of the river, with a minimum of 20% of the total river length within the development area being surveyed. This ensures comprehensive representation of the watercourse's condition.
- 2 **Desk-Based Study:** A desk-based study classifies the river into one of thirteen river types based on its geomorphological characteristics, providing a baseline against which the river's condition can be assessed.
- 3 **Condition Assessment:** River condition is evaluated using 32 condition indicators extracted from the MoRPh5 field survey data¹⁴. These indicators are divided into positive and negative categories:
 - a) **Positive Indicators:** Representing the diversity and abundance of habitats, such as vegetation and sediment-related physical features, observed under low-flow conditions.
 - b) **Negative Indicators:** Representing the extent and severity of human interventions and other pressures affecting the river.

Each indicator is assigned a score between 0 and +4 (for positive indicators) or 0 and -4 (for negative indicators). The Preliminary Condition Score for each sub-reach is calculated by averaging the scores of the positive and negative indicators. This score is then translated into a Final Condition Score ranging from 1 (Poor) to 5 (Good) based on the river type and other factors, such as the "shape" factor, which assesses the degree of hydrological or ecological connection to the floodplain. If the river is too deep relative to its width, the score is downgraded¹⁵ to reflect reduced connectivity.

¹¹ <https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides>

¹² Modular River Survey (2022). *The MoRPH Survey: Technical Reference Manual 2022*. Available at: www.modularriversurvey.org/ [Accessed: 20/11/2024]

¹³ Modular River Survey (2019). *The MoRPH Survey: Field Guide*. Available at: www.modularriversurvey.org/ [Accessed: 20/11/2024]

¹⁴ A.M. Gurnell, J. England, S.J. Scott, L.J. Shuker (2024). *A GUIDE TO ASSESSING RIVER CONDITION Part of the Rivers and Streams Component of the Biodiversity Net Gain Metric*. Available at: www.modularriversurvey.org/ [Accessed: 05/07/2024]

¹⁵ Modular River Survey (2021). *How to Apply the River Shape Index*. Available at: www.modularriversurvey.org/ [Accessed: 05/07/2024]



MoRPH Surveys

The MoRPH5 field surveys were undertaken on 4th July 2024. The survey was conducted during low flow conditions to capture information on both the vegetative and physical characteristics of the watercourse and its margins.

- **Survey Details:**

- o The watercourse had an average width of 3.44 m, and the length of the affected watercourse was approximately 20 m.
- o The MoRPH5 surveys are carried out on short modules of the river, the size of which is determined by the river width. In this instance, with a river width of 3.44 m, the module length was 10 m.
- o One MoRPH5 survey was completed, covering a 50-meter sub-reach, in line with survey guidelines to cover at least 20% of the total length.
- o The surveys were spaced evenly across the watercourse to capture any variations in features.
- o When possible, both banks were accessed for the survey. Any limitations in survey access or coverage were noted and are detailed in **Section Error!**
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The locations of the mid-points of each MoRPH5 survey module are included in **Table 2-1** belowError! Reference source not found..

Table 2-1: RCA Survey Mid-Points

Module Number	Grid Reference
MoRPH 1	
1	SJ 43895 97105
2	SJ 43883 97101
3	SJ 43864 97095
4	SJ 43850 97090
5	SJ 43854 97091

Desk Study – River Type

The River Type calculation aims to classify the river into one of thirteen river types based on its geomorphological characteristics, providing a baseline for assessing the river's condition. This desk study was completed on 6th November 2024, using Google Earth and information from Environment Agency's Catchment Data Explorer¹⁶ to inform the assessment of factors such as reach length, confinement, sinuosity and gradient.

Survey Data Processing

Following the completion of the MoRPH5 surveys, the collected data is uploaded into the **Cartographer** platform (www.cartographer.io), where it is processed along with the desk

¹⁶ <https://environment.data.gov.uk/catchment-planning>



study information. The platform automatically calculates the preliminary and final condition scores for the watercourse.

- **Preliminary Condition Score:** Calculated by summing the positive and negative indicator scores for each sub-reach.
- **Final Condition Score:** Based on the preliminary score and river type, ranging from 1 (Poor) to 5 (Good). The final score is adjusted based on the river's shape and ecological connectivity to the floodplain.

2.2.2.3 Great crested Newt Surveys

Habitat suitability index

A great crested newt (GCN) Habitat Suitability Index (HSI) assessment was also undertaken on 29th June 2023 of all waterbodies within 0.5 km of the BESS Site, where access was granted.

The waterbodies were assessed using the HSI assessment which evaluates 10 different factors of the pond which increase/decrease the likelihood of GCN presence such as terrestrial habitat, permanence of the pond, water quality, location etc.

The factors are then allocated standardised scores, which are inputted into the following equation to calculate the suitability of the pond:

- $HSI = (SI1 \times SI2 \times SI3 \times SI4 \times SI5 \times SI6 \times SI7 \times SI8 \times SI9 \times SI10)^{1/10}$

In addition, an eDNA sampling survey of the waterbodies was undertaken where possible. This sampling was undertaken following the sampling protocol published by Dr Helen Rees¹⁷

The eDNA sampling survey and HSI assessments included two of the six waterbodies located within 0.5 km of the Site.

2.2.2.4 Bat survey

Preliminary Roost Assessment (PRA) of Trees and onsite Barn

During the field survey undertaken on 29th June 2023 Mark Nelson, an Associate Ecologist at SLR consulting Limited, accompanied by Toby Bell, an Assistant Ecologist at SLR consulting Limited undertook a PRA of trees within the Site boundaries and an evaluation of the potential for bats to use the barn onsite was also assessed. The PRA assessment consisted of a ground based visual inspection of the trees and barn to assess their potential to provide opportunities for roosting by bats.

The inspection involved using binoculars and torches to seek potential roost features (PRF), such as lifted bark, dense ivy, woodpecker hole and/or other cavities. Trees were then assessed as having negligible, low, moderate, or high potential to support bats as follows (in accordance with BCT (2016):

- **Negligible:** Negligible habitat features unlikely to be used by roosting bats.
- **Low:** A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.

¹⁷ Rees, H (20221) eDAN Survey Protocol. ADAS [Accessed on 30/08/2022] Available at: <https://adas.co.uk/wp-content/uploads/2021/01/eDNA-Protocol-2019-1.pdf>



- Moderate: A tree with one or more PRFs that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status
- High: A tree with one or more PRFs that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

2.3 Limitations

2.3.1 Desk Study

Desk study data is unlikely to be exhaustive, especially in respect of species, and is intended mainly to set a context for the study. It is therefore possible that important habitats or protected species not identified during the data search do in fact occur within the vicinity of the site. Interpretation of maps and aerial photography has been conducted in good faith, using recent imagery, but it has not been possible to verify the accuracy of any statements relating to land use and habitat context outside of the field study area.

An ecological data search was requested from Merseyside BioBank, however part of the 2 km search area was located within Lancashire Environment Record Network (LERN) and therefore the data search results do not include the complete 2 km area (approx. 90 ha) see **Appendix C**. It is therefore possible that notable habitats, locally designated sites, or protected species may occur in the vicinity of this area, however the distance from the site has been deemed as such that there is likely to be a negligible impact.

2.3.2 Field Surveys

2.3.2.1 UK Habitat (UKHab) Classification Survey

To ensure continuity of recording, UK Hab version one was used throughout the surveys. Certain Habitats present in the wider survey had changed from habitat classification to secondary codes with the publication of UKHab 2.0, for instance Open Mosaic Habitat on Previously Developed Land. As none of the habitats likely to be impacted had changed between the original and UKHab 2.0 this is not considered a significant limitation.

A site visit was undertaken on the 3rd of October 2023, this surveyed the proposed cable routes. It is recognised that this survey was completed outside of the optimal window for UK Habitat Surveys which is considered to be April to September inclusive. However, since it was only a few days out of season and habitats present were generally floristically poor it was determined this would have a negligible impact on survey results.

2.3.2.2 River Condition Assessment

One module could only be assessed from one bank due to dense vegetation, however the remaining four modules were assessed from both banks so this is not considered a significant limitation.

2.3.2.3 Great crested Newt Surveys

The Habitat Suitability Index (HSI) for great crested newt was undertaken in June which is considered an appropriate time of year for completing GCN surveys. However, when arriving upon the Site several of the identified ponds had dried up/moved due to the temporary nature of the site, therefore these ponds were not assessed.



2.4 Assessment Approach

Guidance on the assessment of biodiversity and nature conservation is provided in the CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester, updated Sept 2019. This guidance is used within this report to assess the significance of impacts on ecological features within the scheme boundary and adjacent areas.

The assessment of likely significant environmental effects as a result of the Proposed Development has taken into account the construction and operational phases.

The duration of the effect has been assessed as either 'short-term', 'medium-term' or 'long-term'. Short-term is considered to be up to 1 year, medium-term is considered to be between 1 and 10 years and long-term is considered to be greater than 10 years.

2.4.1 Assigning value (importance)

The table below provides the description for relative importance for biodiversity resources that is applied to ecological features considered within this assessment.

Table 2-2: Biodiversity resource importance

International or European importance	
Sites	Sites including: European sites: - o Sites of Community Importance (SCIs); - o Special Protection Areas (SPAs); - o potential SPAs (pSPAs); - o Special Areas of Conservation (SACs); - o Candidate or possible SACs (cSACs or pSACs); - o Wetlands of International Importance (Ramsar sites). Biogenetic Reserves, World Heritage Sites (where recognised specifically for their biodiversity value) and Biosphere Reserves. Areas which meet the published selection criteria for those sites listed above but which are not themselves designated as such.
Habitats	N/A
Species	Resident, or regularly occurring, populations of species which can be considered at an international or European level where: the loss of these populations would adversely affect the conservation status or distribution of the species at an international or European scale; or the population forms a critical part of a wider population at this scale; or the species is at a critical phase of its life cycle at an international or European scale.



UK or National importance	
Sites	Sites including: Sites of Special Scientific Interest (SSSIs) or Areas of Special Scientific Interest (ASSIs); National Nature Reserves (NNRs); National Parks; Marine Protected Areas (MPAs) including Marine Conservation Zones (MCZs); or areas which meet the published selection criteria for those sites listed above but which are not themselves designated as such.
Habitats	Habitats including: areas of UK BAP priority habitats; habitats included in the relevant statutory list of priority species and habitats; and areas of irreplaceable habitats including: - o ancient woodland; - o ancient or veteran trees; - o blanket bog; - o limestone pavement; - o sand dunes; - o salt marsh; - o lowland fen. areas of habitat which meet the definition for habitats listed above but which are not themselves designated or listed as such.
Species	Resident, or regularly occurring, populations of species which can be considered at an international, European, UK or national level where: the loss of these populations would adversely affect the conservation status or distribution of the species at a UK or national scale; or the population forms a critical part of a wider population at this scale; or the species is at a critical phase of its life cycle at a UK or national scale.
Regional importance	
Sites	Designated sites (non-statutory) including heritage coasts.
Habitats	Areas of habitats identified (including for restoration) in regional plans or strategies (where applicable).
Species	Species including: resident, or regularly occurring, populations of species which can be considered at an international, European, UK or national level where: - o the loss of these populations would adversely affect the conservation status or distribution of the species at a regional scale; or - o the population forms a critical part of a wider regional population; or - o the species is at a critical phase of its life cycle; Species identified in regional plans or strategies.



County or equivalent authority importance	
Sites	Wildlife / nature conservation sites designated at a county (or equivalent) level including: Local Wildlife Sites (LWS); Local Nature Conservation Sites (LNCS); Local Nature Reserves (LNRs); Sites of Importance for Nature Conservation (SINCs); Sites of Nature Conservation Importance (SNCIs); County Wildlife Sites (CWSs);
Habitats	Areas of habitats identified in county or equivalent authority plans or strategies (where applicable).
Species	Species including: resident, or regularly occurring, populations of species which can be considered at an international, European, UK or national level where: - o the loss of these populations would adversely affect the conservation status or distribution of the species at a county or unitary authority scale; or - o the population forms a critical part of a wider county or equivalent authority area population, e.g. metapopulations; or - o the species is at a critical phase of its life cycle. Species identified in a county or equivalent authority area plans or strategies.
Local importance	
Sites	Wildlife / nature conservation sites designated at a local level including: Local Wildlife Sites (LWS); Local Nature Conservation Sites (LNCS); Local Nature Reserves (LNRs); Sites of Importance for Nature Conservation (SINCs); Sites of Nature Conservation Importance (SNCIs); Sites of Local Nature Conservation Importance (SLNCIs).
Habitats	Areas of habitat considered to appreciably enrich the habitat resource within the local context including features of importance for migration, dispersal, or genetic exchange.
Species	Populations / communities of species considered to appreciably enrich the habitat resource within the local context including features of importance for migration, dispersal or genetic exchange.

2.4.2 Significance criteria

Table 2 below details the approach used in this assessment to for level (magnitude) of impacts.



Table 2-3: Level of impact criteria

Level (magnitude) of impact		Typical description
Major	Adverse	Permanent/irreversible damage to a biodiversity resource; and The extent, magnitude, frequency, and/or timing of an impact negatively affects the integrity or key characteristics of the resource.
	Beneficial	Permanent addition of, improvement to, or restoration of a biodiversity resource; and the extent, magnitude, frequency, and/or timing of an impact positively affects the integrity or key characteristics of the resource.
Moderate	Adverse	Temporary/reversible damage to a biodiversity resource; and the extent, magnitude, frequency, and/or timing of an impact negatively affects the integrity or key characteristics of the resource.
	Beneficial	Temporary addition of, improvement to, or restoration of a biodiversity resource; and the extent, magnitude, frequency, and/or timing of an impact positively affects the integrity or key characteristics of the resource.
Minor	Adverse	Permanent/irreversible damage to a biodiversity resource; and the extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
	Beneficial	Permanent addition of, improvement to, or restoration of a biodiversity resource; and the extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Negligible	Adverse	Temporary/reversible damage to a biodiversity resource; and the extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
	Beneficial	Temporary addition of, improvement to, or restoration of a biodiversity resource; and the extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
No change		No observable impact, either positive or negative.



2.4.3 Significance of Effects

Each impact assigned using the above criterion has been translated to a significance level as shown in the **Table 2-4** below.

Table 2-4: Significance of effects

Resource importance	Level of impact					
		No change	Negligible	Minor	Moderate	Major
International or European importance		Neutral	Slight	Moderate or large	Large or very large	Very large
UK or national importance		Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
Regional importance		Neutral	Neutral or slight	Slight	Moderate	Moderate or large
County or equivalent authority importance		Neutral	Neutral or slight	Neutral or slight	Slight	Slight or moderate
Local importance		Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

The following terms have been used to define the level of the effects identified and these can be 'beneficial' or 'adverse':

- Large or very large effect: where the Proposed Scheme is likely to cause a considerable change from the baseline conditions and the receptor has limited adaptability, tolerance or recoverability or is of the highest sensitivity. This effect is considered to be 'Significant';
- Moderate effect: where the Proposed Scheme is likely to cause either a considerable change from the baseline conditions at a receptor which has a degree of adaptability, tolerance or recoverability or a less than considerable change at a receptor that has limited adaptability, tolerance or recoverability. This effect is considered more likely to be 'Significant' but will be subject to professional judgement;
- Slight effect: where the Proposed Scheme is likely to cause a small, but noticeable change from the baseline conditions on a receptor which has limited adaptability, tolerance or recoverability or is of the highest sensitivity; or where the Proposed Scheme is likely to cause a considerable change from the baseline conditions at a receptor which can adapt, is tolerant of the change or/and can recover from the change. This effect is considered less likely to be 'Significant' but will be subject to professional judgement; and
- Neutral: where the Proposed Scheme is unlikely to cause a noticeable change at a receptor, despite its level of sensitivity or there is a considerable change at a receptor which is not considered sensitive to a change. This effect is 'not significant'.



2.4.4 Cumulative Effects

Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can occur where a proposed development results in individually insignificant impacts that, when considered in-combination with impacts of other proposed or permitted plans and projects, can result in significant effects.

2.4.5 Avoidance, Mitigation, Compensation and Enhancement

When seeking mitigation or compensation solutions, efforts should be consistent with the geographical scale at which an effect is significant. For example, mitigation and compensation for effects on a species population significant at a county scale should ensure no net loss of the population at a county scale. The relative geographical scale at which the effect is significant will have a bearing on the required outcome which must be achieved.

Where potentially significant effects have been identified, the mitigation hierarchy has been applied, as recommended in the CIEEM Guidelines. The mitigation hierarchy sets out a sequential approach beginning with the avoidance of impacts where possible, the application of mitigation measures to minimise unavoidable impacts and then compensation for any remaining impacts. Once avoidance and mitigation measures have been applied residual effects are then identified along with any necessary compensation measures, and incorporation of opportunities for enhancement.

It is important for the EclA to clearly differentiate between avoidance mitigation, compensation and enhancement and these terms are defined here as follows:

- Avoidance is used where an impact has been avoided, e.g., through changes in scheme design;
- Mitigation is used to refer to measures to reduce or remedy a specific negative impact in situ;
- Compensation describes measures taken to offset residual effects, i.e., where mitigation in situ is not possible; and
- Enhancement is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures, although they can be complementary.

3.0 Baseline Ecological Conditions

The results of the desk and field survey are reported below and describe the baseline conditions at the Site and within the surrounding area.



3.1 Designated Sites

3.1.1 Statutory Designated Sites

Acornfield Plantation, a Local Nature Reserve (LNR) is located 0.64 km west of the Site. LNR's are designated under legislation, however, they are generally of up to county-level ecological importance.

Table 3-1 provides a summary of the statutory designated sites of relevance.

Table 3-1 Summary of international designated sites within 10 km and nationally designated within 5 km of the Proposed Development

Site name	Distance from scheme	Reason for designation	Importance
Acornfield Plantation Local Nature Reserve (LNR)	0.64 km west	Mature broadleaved woodland characterised by birch <i>Betula</i> sp., oak <i>Quercus</i> sp. and sycamore <i>Acer pseudoplatanus</i> . The centre of the reserve encompasses a lowland basin mire which is dominated by sphagnum moss <i>Sphagnum</i> and soft rush <i>Juncus effusus</i> .	County
Croxteth LNR	3.3 km Southwest	An Urban Fringe LNR. Woodland, rough grassland and pasture, several ponds and is bounded by the River Alt. A variety of birds breed in the woodland and the ponds are good for plants such as water dropwort and dragonflies.	County
Mill Brow LNR	4.5 km Southeast	Wet woodland and a riparian strip of grassland with wet woodland and wet scrapes good for amphibians. There are records of water voles along Mill Brook.	County
Siding Lane Woodland LNR	4.5 km Northeast	The former site of the Rainford Colliery, now a mixed woodland and rough grassland managed to provide the best habitat for its many Birds, Butterflies and Small Mammals.	County

Information on sites with statutory designations have been drawn from the MBB data search and from the MAGIC website resource.

3.1.2 Non-Statutory Designated Sites

A data request search for non-statutory nature conservation sites, undertaken for an area of 2 km around the Site by MBB, has confirmed the presence of the following Non-Statutory Designated sites.

Knowsley and St. Helens Mosslands a Nature Improvement Area (NIA). Located 0.3 km from the Site, the nature improvement area is one of seventeen focus areas in the Liverpool city region. Priority habitats present across the site include peatland, lowland bog/fen, wet



grasslands, heathland, wet woodlands, and woodlands. Priorities lie in habitat creation of lowland bog on areas of degraded peatland. Existing habitats also to be managed include enhancing existing lowland bog; woodland planting with the aim for them to develop into natural woodlands; increasing the species diversity of existing grasslands, ponds, ditches and other wetland habitats; and maintaining the extent and enhancing the condition of the habitats used by breeding and wintering birds. This NIA is therefore considered to be of **Regional Importance**.

River Alt and M57 Corridor a Nature Improvement Area. Located 1.99 km from the site, the nature improvement area is one of seventeen focus areas in the Liverpool city region. The site follows the M57 corridor, and the tributaries of the river Alt including Croxeth Park and Valley Park. Predominantly unused farmland, dominated by grassland habitats and woodlands. Protected species such as red squirrels and water voles inhabit the woodlands and river. Habitat creation priorities include opportunities to re-naturalise rivers and brooks, create grasslands and woodland. This NIA is therefore considered to be of **Regional Importance**.

A further nine Local Wildlife Sites (LWS) and one Local Geological Site (LGS) were identified within 2 km of the site. These are noted in **Table 3-2** below. The closest of these sites is Mosslands, w of Johnson's Cottage, Kirkby LWS 560 m east of the Site. The LWS are all considered to be of up to county level ecological value.

Table 3-2 Summary of Non-statutory Designated Sites within 2 km of the Proposed Development

Site name	Distance from scheme	Reason for designation	Importance
Mosslands, w of Johnson's Cottage, Kirkby Knowsley Local Wildlife Site	0.56 km East	A relict raised mire with birch-dominated woodland and rhododendron. One of only two relict raised mires in Knowsley.	Local
Knowsley Park Knowsley Local Wildlife Site	0.68 km South	Ancient parkland and estate on a mix of acidic (peat) and neutral soils with sandstone exposures along the brooks. Much coniferous planting has taken place although several of the woodlands contain plants indicative of ancient semi-natural woodland. Other habitats include dams with open water, acidic grassland, remnant heath and mire. The Park also has populations of bats and other protected species.	Local
Acornfield Plantation Knowsley Local Wildlife Site	0.75 km West	Predominantly a mature/over-mature broadleaf woodland of birch, oak and sycamore with a unique basin mire. Mire provides habitat for breeding dragon and damselflies. Other habitats include: pond, stream, drainage channels, acidic and neutral grasslands, bracken and rhododendron thickets.	Local



Charley Wood Knowsley Local Wildlife Site	0.90 km West	A woodland dominated by broadleaf trees on acid peat soils. There is much variation in tree and shrub cover with large glades apparent. Rhododendron has been planted and is thriving. Invertebrate interest is high.	Local
Moss Plantation and Brown Birches Knowsley Local Wildlife Site	1.01 km Northeast	A coniferous plantation on peat with much rhododendron and relict raised bog vegetation.	Local
Emma Wood St Helens Local Wildlife Site	1.38 km East	A mixed deciduous and coniferous plantation containing a number regionally and locally important habitats as well as English Bluebell. The woodland is an important site for breeding birds.	Local
Mossborough Moss woodlands and land St Helens Local Wildlife Site	1.42 km East	A mixed plantation with Scots Pine and an understorey of Rhododendron. The woodland is an important breeding site for woodland birds.	Local
Brown Birches St Helens Local Wildlife Site	1.44 km Northeast	A mixed deciduous and coniferous plantation. This woodland is an important site for both breeding birds and red squirrels.	Local
Knowsley Park Moss Knowsley Local Geological Site	1.61 km South	Site designated for its geological interest.	No importance as an ecological feature
Otis Meadow Knowsley Local Wildlife Site	1.90 km West	A mix of damp and dry grasslands with developing scrub. Unusual habitats within the Knowsley Industrial Estate.	Local

3.2 Ancient Woodland and Priority Habitats

A review of habitat inventory data on MAGIC Maps returned information on several priority habitats; semi-improved grassland, Lowland Fens, Lowland Raised Bog, Deciduous Woodland, Wood-pasture and Parkland BAP are present within 2 km of the Site. The closest is a parcel of Deciduous Woodland 530 m north of the Site. As Priority habitats these are considered of **National Importance**.

3.3 River classification

Knowsley Brook is classified as a Main River at both likely crossing points. It is classified as being in Moderate Condition in 2019 on the catchment data explorer, rating poor for invertebrates and moderate for macrophytes. Main reasons for not achieving good (RNAG) and reasons for deterioration (RFD) relate to physical modification of the Brook and



presence of priority hazardous substances including Mercury and its compounds and Polybrominated diphenyl ethers (PBDE).

No EA fish, invertebrate or macrophyte monitoring records were found on this waterbody on the Ecology & Fish Data Explorer.

Knowsley Brook is included in the Alt Crossens Catchment Plan¹⁸ from the point it culverts to the west of the site and is therefore considered to be of **Regional Importance**.

3.4 Habitats

The results of the UK habitat survey are presented in table below. In summary, the following habitats were recorded within the Site boundary and along the cable route:

- Urban; Artificial unvegetated, unsealed surface
- Developed land; sealed surface
- Other neutral grassland
- Neutral grassland
- Other broadleaved woodland
- Other standing waters
- Sparsely vegetated land
- Hedgerow (Priority Habitat)
- Line of trees
- Other rivers and streams

Additional habitats present surrounding the Site:

- Arable Field- crop field
- Arable Field Margins
- Modified Grassland
- Bramble scrub
- Open mosaic habitats on previously developed land
- Suburban/ mosaic of developed/ natural surface
- Mixed scrub
- Urban; Buildings
- Eutrophic standing waters

Habitats are described in **Table 3-3** below, and locations shown on **Appendix D**.

¹⁸ https://merseyrivers.org/images/Catchment_Partnership_Docs/Management_Catchment_Plan_Alt-Crossens_-_v14_FINAL.pdf



Table 3-3 Habitats present on Site

UK Habitat Code	Description	Photo	Importance
u1c Artificial unvegetated, unsealed surface	Land that has no or very low (less than 10%) vegetation cover and which is not sealed with impermeable materials. This includes areas recently stripped and partially extracted as part of quarrying activity, dug over ground with piles of spoil with some scarce vegetation and occasional recent pools in depressions, bare ground heavily impacted by machinery, the access track from Cut Lane, and the compacted gravel area at the southwest of the substation.		Less than Local
u1b Developed land; sealed surface	Soil surface sealed with impermeable materials. This includes roads (Cut Lane and Hewitt's Lane).		Less than Local
g3c Other neutral Grassland	A neutral grassland with over 20% herbs and sedges, abundant Yorkshire fog <i>Holcus lanatus</i> , and less than 30% cover of rye grass <i>Lolium perenne</i> and white clover <i>Trifolium repens</i> . Mainly grasses, common bird's-foot trefoil <i>Lotus corniculatus</i> and lesser trefoil <i>Trifolium dubium</i> . Presence of Yorkshire fog, red fescue <i>Festuca Rubra</i> , goldenrod <i>Solidago virgaurea</i> , creeping thistle <i>Cirsium arvense</i> and ragwort <i>Jacobaea vulgaris</i> .		Less than Local



g3c8 Holcus-Juncus neutral grassland	Neutral grassland with Yorkshire fog and rush species dominant. Includes unmanaged grassland dominated by Yorkshire fog with false oat grass <i>Arrhenatherum elatius</i>, perennial rye grass, red fescue, ragwort, dandelion <i>Taraxacum</i> agg., ribwort plantain <i>Plantago lanceolata</i>, broadleaved dock <i>Rumex obtusifolius</i>, creeping thistle, soft rush <i>Juncus effusus</i> clumps, silverweed <i>Potentilla anserina</i>, tufted vetch <i>Vicia cracca</i>, creeping buttercup <i>Ranunculus repens</i> and cock's-foot grass <i>Dactylis glomerata</i>.		Less than Local
g3 Neutral Grassland	Vegetation dominated by herbs and grasses on a range of neutral soils. A mound dominated with scentless mayweed <i>Tripleurospermum inodorum</i> with nipplewort <i>Lapsana communis</i>, creeping thistle, common poppy <i>Papaver rhoeas</i>, tufted vetch, occasional perennial rye grass and barren brome <i>Anisantha sterilis</i>.		Less than Local
w1g Other woodland; broadleaved	Broadleaved and mixed woodland which does not meet the criteria for a specific woodland type. The area of woodland north of the A580 consists of Alder <i>Alnus glutinosa</i>, white poplar <i>Populus alba</i>, ash <i>Fraxinus excelsior</i>, oak <i>Quercus robur</i>, rowan <i>Sorbus aucuparia</i>, birch <i>Betula pendula</i> willow <i>Salix</i> sp., sycamore <i>Acer pseudoplatanus</i>, small leaved lime <i>Tilia cordata</i>, elder <i>Sambucus nigra</i>, hazel <i>Corylus avellana</i>. The woodland alongside the access track is a plantation woodland in lines of even aged semi mature oak, ash, sweet chestnut <i>Castanea sativa</i>, hawthorn <i>Crataegus monogyna</i>, guelder rose <i>Viburnum opulus</i> and a lot of alder saplings. Bracken <i>Pteridium aquilinum</i> is growing at the edges.		Local



r1g Other standing waters	Three ponds formed in depressions caused by recent excavation. Pond 1 is a small ephemeral pond with no vegetation. Broad bodied chaser <i>Libellula depressa</i> present. Pond 2 is an unvegetated temporary pond. Some insects present including broad bodied chaser. Pond 3 is an ephemeral waterbody in shallow depression		Less than local
S Sparsely vegetated land	Disturbed land with less than 50% vegetative cover. Includes very sparse <i>vegetation</i> on a <i>large</i> earthen mound. <i>Scentless</i> mayweed, broad-leaved willowherb <i>Epilobium montanum</i>, broad leaved dock, common poppy.		Less than local
h2a Hedgerow (priority habitat)	Native hedgerows bordering Site and roads. H2- Species poor intact and unmanaged Hedgerow, 3m tall, 4m wide. Blackthorn, poppy, nipplewort, dog rose, hedge bindweed. No trees. H4 - Hawthorn Hedgerow along south of Cut Lane, 1.5 m high, 1m wide, cut verge. H5- Hedgerow, 4m high, 2m wide. Hawthorn Dominant with holly, elder, brambles, nettle, hedge bindweed, bracken. Dry ditch for some of length. H11 – 1.5m High, 1m wide. Sycamore dominant to the south, hawthorn dominant to the north. H13- 1.5m tall, 1m wide. Mixed hedgerow, dominated by hawthorn		National



	but with occasional holly, oak, and blackthorn.		
w1g6 Line of Trees	Line of ornamental conifers		Less than local
r2b Other rivers and streams	Knowsley Brook. Fast flowing but after heavy rain. Largely shaded and culverts beneath Hewitts Lane.		Local

3.5 River Condition Assessment

Knowsley Brook is classified as River Type F – an unconfined, straight-sinuuous alluvial channel with cobble / gravel as the average alluvial bed material size class. The preliminary condition score was 1.32. When combined with the river type survey results, the overall condition classified is “Moderate”.

In addition, the “shape” factor is considered in the condition assessment¹⁹. The shape score for Knowsley Brook is low at 1.638. Any score <2 is highly likely to indicate a river which is overdeep. Therefore, this score, combined with the observation that the steep bank sides could be indicative of artificial deepening in the past, results in a downgrading of the overall condition score to “Fairly Poor”.

3.6 Species

3.6.1 Flora

The MBB returned records for twenty-five species of native plants including Bluebell *Hyacinthoides non-scripta*, great sundew *Drosera anglica*, Corn Spurrey *Spergula arvensis* and Cornflower *Centaurea cyanus* within 2 km of the Site.

Ragwort *Jacobaea vulgaris*, a Section 41 species, was present on site and in the surrounding area but otherwise no notable or endangered species were found during survey. Habitats around the BESS site were highly disturbed or under regular management and unlikely to support populations of notable or endangered plant species. The woodland along the cable route is a mix of relatively recent plantation and self-set woodland with a very limited ground flora unlikely to contain notable or endangered species.

Overall, the surveys indicate an absence of notable or protected plant species within the Site; notable plant and/or protected plants will not be considered further within this assessment.

¹⁹ [Considering connectivity in River Condition Assessments – Modular River Survey](#)



3.6.2 Invertebrates

MBB returned over five hundred records of notable or endangered invertebrate species relating to thirty-one species including alder leaf beetle *Agelastica alni*, sallow *Cirrhia icteritia*, common darter *Sympetrum striolatum*, *Pseudolyciella pallidiventris*, and *Elodes minutus*. A number of these invertebrates are included in the North Merseyside Biodiversity Action Plan (NM BAP), these species are considered to be a priority in North Merseyside; Azure Damselfly *Coenagrion puella*, Blue-tailed Damselfly *Ischnura elegans*, Broad-bodied Chaser *Libellula depressa*, Brown Hawker *Aeshna grandis*, Common Blue Damselfly *Enallagma cyathigerum*, Common Darter *Sympetrum striolatum*, Common Hawker *Aeshna juncea*, Emperor Dragonfly *Anax imperator*, Large Red Damselfly *Pyrrosoma nymphula* and Southern Hawker *Aeshna cyanea*.

The Buglife Important Invertebrate Areas (IAA) Map showed no IAA's within a ZOI of 5 km of the Site.

Broad-bodied chaser was observed ovipositing into ponds P1 and P2; these ponds were recently formed with no vegetation which is preferred habitat for broad-bodied chaser to breed in. These ponds however are unlikely to remain for the two years required for this species to develop before emergence so are functioning as ecological sinks. Habitats on site are generally poor for invertebrates with excessive bare ground and limited floristic diversity and subjected to repeated disturbance. The vegetated mound has the most value to invertebrates with higher floristic diversity and varied structure created by the banks of the mound.

Habitats along the cable route including hedgerow, woodland, and scrub provide more potential for invertebrates.

An area of land off Hewitt's Lane adjacent to the Cable Route was assessed for potential to be Open Mosaic Habitat on Previously Developed Land (OMH); this habitat is a priority habitat of high importance to invertebrate species. To qualify as this habitat the area must meet the following criteria:

- The area of open mosaic habitat is at least 0.25 ha in size;
- There is a known history of disturbance at the site or evidence that soil has been removed or severely modified by previous use(s) of the site. Extraneous materials/substrates such as industrial spoil may have been added;
- The site contains some vegetation. This will comprise early successional communities consisting mainly of stress-tolerant species (e.g. indicative of low nutrient status or drought). Early successional communities are composed of (a) annuals, or (b) mosses/liverworts, or (c) lichens, or (d) ruderals, or (e) inundation species, or (f) open grassland, or (g) flower-rich grassland, or (h) heathland;
- The site contains unvegetated, loose bare substrate and pools may be present; and
- The site shows spatial variation, forming a mosaic of one or more of the early successional communities (a)–(h) above (criterion 3) plus bare substrate, within 0.25 ha.

While this area has a history of disturbance (ruins of building present), contains vegetation including ruderals and open grassland, contains unvegetated loose bare substrate, and shows spatial variation. It is however approximately 0.2 ha in size and thus does not qualify as OMH.

As there is confirmed presence of Broad-bodied chaser, a NM BAP species, on Site invertebrates will be considered further within this assessment.



3.6.3 Amphibians

The MBB returned records of amphibians including great crested newt (GCN), Smooth Newt *Lissotriton vulgaris*, Common Frog *Rana temporaria*, and Common Toad *Bufo bufo*. One record for GCN was from within the existing Kirkby Electricity Substation.

The site supports 1 pond within the site boundary with an additional 5 ponds within a 500 m radius. Ditches in the vicinity of the site were found to be dry and unsuitable for GCN at the time of survey. Locations of the ponds are shown in **Appendix E**.

HSI assessment of the ponds demonstrated that the waterbodies within or in proximity to the Site are considered to offer poor to average breeding suitability for GCN. Summary scores are shown in **Table 3-4** with detailed results shown in **Table 3-5** below.

Table 3-4 Overall HSI Results from Pond surveys

Waterbody	Index Result	Result
P1	0.49	Poor
P2	0.52	Below average
P3 (On Site)	0.42	Poor
P4	0.64	Average
P5	0.49	Poor
P6	0.53	Below average

Table 3-5 Detailed HSI Results from Pond surveys

Factors	P1	P2	P3	P4	P5	P6
Map Location	A	A	A	A	A	A
Surface Area (m ²)	26	57	120	290	126	26
Permanence	Sometimes dries	Rarely dries	Dries annually	Never dries	Sometimes dries	Never dries
Water quality	Poor	Poor	Poor	Moderate	Poor	Good
Shade	40%	20%	0%	100%	0%	90%
Waterfowl presence	Absent	Absent	Absent	Absent	Absent	Absent
Fish presence	Absent	Absent	Absent	Absent	Absent	Absent



Pond density	3.18	3.18	3.18	3.18	3.18	3.18
Terrestrial habitat	Poor	Poor	Poor	Poor	Poor	Poor
Macrophyte Cover	0%	0%	0%	0%	0%	0%

eDNA Sampling Results

Two of the waterbodies were subject to eDNA sampling, P2 and P4. Results of the P4 samples collected were returned as negative for the presence of GCN eDNA within 7-21 days leading up to the survey. Results for P2 were returned as inconclusive for the presence of GCN eDNA within 7-21 days leading up to the survey result, as such there is a negligible chance that there is a presence of GCN. Visual inspection of P2 could see clear water to the bottom of the pond with no sign of amphibians or any vegetation, although a limited number of early colonising invertebrates were seen. The likelihood of earth collapsing and filling the pond as part of site operation suggested this was a temporary waterbody and combined with the eDNA result the surveyors professional judgement was that this pond was unlikely to be used by GCN.

The Natural England Rapid Results Calculator²⁰ based on the assessments above suggests negligible effect on GCN and that it is highly unlikely an offence against GCN will be committed during construction or operation.

Table 3-6 NE Rapid Results Calculator Assessment Table

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	1 - 5 ha lost or damaged	0.04
Individual great crested newts	Minor disturbance of newts	0
Maximum:		0.04
Rapid risk assessment result:	GREEN: OFFENCE HIGHLY UNLIKELY	

²⁰ Included in NE's Template for Method Statement to support application for licence under Regulation 55(2)(e) of The Conservation of Habitats and Species Regulations 2017 (as amended) in respect of great crested newts *Triturus cristatus*. Form WML-A14-2 (Version April 2020)



A further pond approximately 60 m east of the RLB along Hewitt's Lane cable route was not surveyed and therefore due to the potential for GCN to be using this pond this species will be carried forward in this assessment.

3.6.4 Reptiles

MBB returned no recent records for reptiles.

There were no direct signs or evidence of reptiles within the Site and habitats on Site were generally unfavourable for these species. Habitats along the cable routes including hedgerows, field margins, and woodland and scrub could be used by reptiles if present, but these habitats are generally suboptimal for these species, either being within arable settings or heavily shaded.

As such, reptiles will not be considered further within the assessment.

3.6.5 Birds

MBB returned no recent records of Red and Amber listed or Schedule 1 bird species within 2km of the site.

The Site in general is unlikely to be used by breeding birds due to the high level of activity that has historically taken place such as the mineral extraction and constant movement of materials. The hedgerows and vegetation in more settled areas within the Site and along the Site boundaries could be used by a range of common and widespread bird species throughout the year but as these habitats are typical of the local landscape and it is unlikely to represent an important resource for such species locally.

Habitats along the cable routes including hedgerows, field margins, woodland and scrub could be used by a variety of breeding birds. Breeding birds are therefore carried forward in this assessment.

The surrounding landscape of arable and pasture fields are likely to be used by a variety of wintering and passage bird species including pink footed goose *Anser brachyrhynchus*. The Site consists of small fields, a heavily disturbed area and urban hard standing. Habitats on Site do not provide suitable foraging resources or the large open aspects these species require. Surrounding farmland in the wider area has greater potential to act as suitable habitat for these species. As a result, the Site is not considered to be regularly used by pink footed geese. There is unlikely to be any significant disturbance or habitat loss for these species and therefore wintering birds will not be considered further in this report.

3.6.6 Mammals

Bats

The MBB returned numerous records of bat species within 2 km of the survey area including; Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Daubenton's Bat *Myotis daubentonii*, Noctule Bat *Nyctalus noctule*, Brown Long-eared Bat *Plecotus auritus*.

The barn adjacent to the BESS Site is of metal construction and following visual inspection was considered unsuitable for roosting bats. No other buildings are present on Site or along the cable route.

No mature or semi-mature trees suitable for bat roosts were present within the BESS Site. Scattered semi-mature to mature trees were located along the planned cable route but these will not be impacted by the works. The cable route through the woodland between Hewitt's Lane and Knowsley Brook contains semi mature trees with no potential roost features identified during survey.



Bats may use the woodlands along the cable route and boundary hedgerows for commuting, and these and the open fields surrounding the Site for feeding. The historically disturbed nature of the Site is unlikely to offer significant feeding potential and the Proposed Development will not impact commuting routes. Lighting is not presently on site and therefore any addition of lighting during construction or operation may impact on bats.

On the basis of the above bats will be taken forward in this assessment.

Badger

The MBB returned one recent record of badger *Meles meles*. This was from 1.5 km east of the Site.

No evidence of badger was recorded during the survey, and setts were considered absent from the Site. It is considered unlikely that the Site will be any more than local importance for this species.

Habitats along the cable routes including hedgerows, woodland and scrub are potentially useable by badgers for sett building although much of it is low lying and liable to be wet so likely to be restricted to raised areas.

Given badgers are a mobile species this species will be taken forward in this assessment.

Red Squirrel

The MBB returned thirteen records of red squirrel *Sciurus vulgaris* within 2 km of the Site. The majority of these are from south of the A580 road which would be a significant constraint to dispersal, however records from north of the A580 1.8 km east of the site were also returned although connectivity between these and the Site is very poor. Records for grey squirrel *Sciurus carolinensis* were more frequent.

Habitats on the BESS Site are unsuitable for red squirrel with no woodland present. Woodland is present along the cable routes; this is largely broadleaved woodland but is potentially useable by red squirrel. Neither red nor grey squirrel were seen during survey.

Otter

MBB returned no records of otter *Lutra lutra*.

Habitats on Site are unsuitable for otter. Habitats along the cable routes are generally unsuitable for otter, however the southern route crosses a tributary of Knowsley Brook along Hewitt's Lane. This is a narrow stream unsuitable for foraging or holts but may be used by otter for commuting. Knowsley Brook culverts significantly to the west after approximately 400 m which may limit the connectivity of this section to the wider hydrological network, with few suitable water courses present in the general area. On this basis, otter will not be considered further in this assessment.

Water Vole

MBB returned no recent records of water vole *Arvicola amphibius*.

Habitats on Site are unsuitable for water vole. Habitats along the cable routes are generally unsuitable for water vole, however the southern route crosses a tributary of Knowsley Brook along Hewitt's Lane. This is a narrow stream but has some suitability for water vole and may be used for commuting. Knowsley Brook culverts significantly to the west after approximately 400 m which may limit the connectivity of this section to the wider hydrological network, with few suitable water courses present in the general area. On this basis, water vole will not be considered further in this assessment.

Other protected, rare and notable mammal species.

MBB returned nine recent records of Brown Hare *Lepus europaeus* and twenty-two records of the West European Hedgehog *Erinaceus europaeus*.



Habitats on Site are largely unsuitable for these species although hedgehog may use the hedgerows and forage in some of the grass areas.

Habitats along the cable routes including hedgerows, arable fields, field margins and scrub are potentially useable by hare and hedgehog but will not be impacted by the works.

On this basis brown hare and hedgehog will not be considered further in this report.

3.6.7 Fish

MBB returned no records for fish species.

Ponds and other standing water on site or along the cable route are unsuitable for fish due to the seasonal drying or shading of established ponds, and the newly formed ponds on site were clearly devoid of fish.

Knowsley Brook would be capable of supporting fish species and be used by these for commuting, although this is unsuitable for salmonids or larger fish. Knowsley Brook culverts significantly to the west after approximately 400 m which may limit the connectivity of this section to the wider hydrological network. The presence of, or use by, eels cannot be excluded.

On the basis of the above fish will be taken forward in this assessment.

3.6.8 Invasive plant species

Records were returned for species listed on Schedule 9 of the Wildlife and Countryside Act²¹ including Himalayan balsam *Impatiens glandulifera*, Japanese knotweed *Reynoutria japonica*, rhododendron ponticum *Rhododendron ponticum*, three-cornered garlic *Allium triquetrum*, water fern *Azolla filiculoides* and the flat worm *Kontikia ventrolineata*.

No evidence for invasive species were found on the BESS Site during the survey, however the disturbance that has historically taken place at the Site does create the conditions for such species to establish quickly if seed should spread from elsewhere.

Evidence of Japanese knotweed was found during the walkover survey for the proposed cable routes on the 3rd of October 2023. This was located at NGR SJ4405097207 on the bank of the river located on Hewitt's Lane. The river culverts under Hewitt's Lane shortly after this occurrence.

On the basis of the above invasive species will be taken forward in this assessment.

3.7 Summary of Important Ecological Features

Based upon the information available to date, **Table 3-7** provides a summary of the important ecological features for which detailed assessment is required (i.e., all features of at least local level of importance and/or subject to legal protection), the geographical context within which each is considered important, and their legal status.

²¹ <https://www.legislation.gov.uk/ukpga/1981/69/schedule/9>



Table 3-7 Summary of Identified Ecological Features subject to Detailed Assessment

Ecological Feature	Scale at which Feature is Important	Comments on Legal Status and/or Importance
Statutory Designated Wildlife Sites	County	Acornfield Plantation Local Nature Reserve (LNR)
Non-Statutory Designated Wildlife Sites	Regional	Knowsley and St. Helens Mosslands a Nature Improvement Area (NIA). River Alt and M57 Corridor NIA
Priority Habitat Hedgerows,	National	Hedgerows present but not currently subject to impact to allow installation of BESS or cable route. NERC Act Section 41
Knowsley Brook	Regional	Alt Crossens Catchment Plan
Other Habitats within the Site Other broadleaved woodland	Local	Any habitat loss and subsequent planting should be informed by a Biodiversity Net Gain calculation, to achieve a positive gain in Biodiversity Units.
Invertebrates	County	North Merseyside Biodiversity Action Plan
Amphibians	National	WCA (1981) NERC Act Section 41
Nesting Birds	Site	WCA (1981) NERC Act Section 41
Bats	Local	The Conservation of Habitats and Species (amendment) (EU exit) Regulations 2019 WCA (1981) NERC Act Section 41
Badger	Local	The Badger Act (1992) WCA (1981) Schedule 6
Red squirrel	County	WCA (1981) Schedule 5 and 6 NERC Act Section 41
Fish	National	The Eels (England and Wales) Regulations 2009
Invasive species	National	WCA (1981) Schedule 9

All other ecological features are assessed as being of less than local importance only or would not be affected and are not considered further by this assessment as any predicted impacts upon them would not be significant in EclA terms.

4.0 Impact Assessment and Proposed Mitigation

The following sections set out (i) the key avoidance measures which have been embedded into the proposed development in order to reduce potential impacts; (ii) the anticipated impacts of the proposed development on the identified Important Ecological Features of the proposed development; and (iii) the proposed mitigation and compensation measures considered necessary and proportionate to reduce or off-set impacts.

4.1 Avoidance Measures

In line with policy and best practice, the Proposed Development has been designed as part of an iterative process taking into consideration ecological constraints, following which the



avoidance measures detailed below have been embedded into the proposed development in order to avoid or minimise impacts.

- Avoidance of hedgerows and lines of trees – the proposed development involves the removal of woodland habitat; however, this has been minimised as far as possible through design to avoid unnecessary hedgerow and tree habitat loss incorporating existing boundary and internal hedgerows and tree lines into the landscape design where possible.
- Avoidance of light spill on to surrounding habitats – artificial lighting will be designed to avoid excessive light spill on to the habitat surrounding the site to ensure that the area remains a dark corridor for light-sensitive species such as bats. This will also be motion triggered to restrict the length of time this is on.
- Avoidance of impacts on Knowsley Brook - Hydraulic Directional Drilling (HDD) will pass beneath the Brook removing the need for open cut, coffer dams, over pumping or diversion of the existing water course.

4.2 Assessment of Impacts and Proposed Mitigation

4.2.1 Designated sites

Potential Direct Impacts

No works would take place within any statutory or non-statutory designated site, the closest being Acornfield Plantation LNR 0.64 km west. Therefore, there will be no significant direct impact on designated sites.

Potential Indirect Impacts – dust and pollution

The River Alt and M57 Corridor NIA is connected hydrologically to the cable route via Knowsley Brook. No other designated site is hydrologically connected to the works. Standard pollution control and dust suppression measures detailed within a Construction and Environmental Management Plan (CEMP) will be implemented to prevent dust and pollution impacts on the designated sites. A bioswale will be installed to prevent additional water runoff from the Site. No further indirect impacts on designated sites are predicted.

4.2.2 Habitats

Most of the habitats within the Site are ubiquitous to the locality and are of no greater than Site level importance. The habitats specifically impacted are addressed below. In general, planting of additional woodland and grassland, enhancement of existing grassland, and creation of a bioswale will increase the amount of available habitat.

Hedgerows

There are no current plans to impact any hedgerows for construction of either the BESS Site or for the Cable Route. Hedgerow planting is proposed in the current Landscape design and this will result in substantial increase in hedgerow habitat within the BESS Site, and an increase in connectivity around it resulting in a **Minor Beneficial** impact on this resource with a **Moderate** significance of effect.



Knowsley Brook

Potential Direct Impacts

No in channel work is expected to be undertaken in Knowsley Brook, with crossings being over an existing culvert and under by HDD. Therefore, there will be no significant direct impact on Knowsley Brook.

Potential Indirect Impacts – dust and pollution

Standard pollution control and dust suppression measures detailed within a CEMP will be implemented to prevent dust and pollution impacts on the river. No further indirect impacts on Knowsley Brook are predicted.

Biodiversity Net Gain

All habitats impacted by the Proposed Development have been evaluated, and any losses addressed within the Statutory Biodiversity Metric and accompanying BNG report²². The Landscape and Ecological Management Plan (LEMP) includes woodland, hedgerow, and individual tree planting, grassland creation and enhancement, restoration of a ditch and creation of a bioswale as mitigation for habitat loss.

The results of the BNG calculations show that the proposed habitat creation and enhancements will result in a 10.76% increase in habitat units, a 745.70% increase in hedgerow units, and a 47.53% in watercourse units. The results of this assessment satisfy the national and current local planning policy and provide a significant uplift in biodiversity units following completion of the Proposed Development.

Further details on the replacement, enhancement and creation of habitats can be found in the BNG report.

4.2.3 Invertebrates

Potential Direct Impacts

Broad-bodied chaser were using two of the temporary ponds on Site at time of survey. These ponds were temporary constructs formed by water filling areas of excavation which were likely to be backfilled or subject to collapse during normal site operation. Broad bodied chaser breed in largely unvegetated or freshly created ponds and take two years before emerging; it is unlikely they would achieve this lifecycle in the ponds present and these are potentially functioning as ecological sinks for this species. The cessation of creation of such water bodies, and creation of a bioswale which as it becomes established will provide suitable habitat for breeding broad-bodied chaser for several years will be a **minor beneficial** impact for this species.

Potential Indirect Impacts – dust and pollution

Standard pollution control and dust suppression measures detailed within a CEMP will be implemented to prevent dust and pollution impacts on the river and other habitats. No further indirect impacts on invertebrates are predicted.

²² SLR (2025) – Kirkby, Proposed Battery Energy Storage System, Biodiversity Net Gain Report 402.V08525.00024_Kirkby BESS_BNG_Feb25For Issue



4.2.4 Amphibians

Potential Direct Impacts

Results from HSI assessment and eDNA testing suggested there would not be significant impact on GCN and a likely absence of this species on the BESS Site. However, the presence of a further pond 60 m to the east of the cable route which has not been assessed suggests there may be an impact if this does contain a population of breeding GCN so as a precaution this will be assessed as a confirmed presence with the potential for this species to be encountered along the cable route.

The BESS Site is sufficiently distant from the pond to consider there to be no significant impact from construction or operation of those works. The cable route passes at 80 m from the pond but works will be in hard standing at this point and for much of the length of the cable route. However, there will be a length of approximately 160m through woodland requiring vegetation clearance which might impact on GCN during their terrestrial phase.

A HSI assessment and eDNA test will, subject to access being permitted, be carried out on the pond prior to construction to confirm presence or absence of GCN. Should this result in a positive result or access not be granted, a range of measures will be implemented detailed within a Precautionary Working Method Statement (PWMS) to reduce the potential of impact to this species. This will include, where possible:

- Restricting works to the winter period (when newts are rarely active above ground);
- Keeping duration of groundworks as short as possible;
- Undertaking during the day works that might only affect newts above ground;
- Backfilling trenches and other excavations before nightfall, or leaving a ramp to allow newts to easily exit and
- Raising stored materials (that might act as temporary resting places) off the ground, e.g. on pallets.

Undertaking this will result in a slight **minor adverse** impact due to temporary habitat loss, but this will be reduced to negligible through the above mitigation.

Potential Indirect Impacts – dust and pollution

Standard pollution control and dust suppression measures detailed within a CEMP will be implemented to prevent dust and pollution impacts on the river and other habitats. No further indirect impacts on amphibians are predicted.

4.2.5 Nesting Birds

All areas of vegetation on Site have potential to support breeding birds. The Site is likely to be used by a range of common and widespread bird species throughout the year but as the Site is typical of the local landscape, it is unlikely to represent an important resource for such species locally.

During the removal of woodland and grassland habitat to facilitate the cable installation, suitable nesting habitat for breeding birds will be lost. Furthermore, during these removal works, direct impacts on nesting birds could occur, by disturbance and/or destruction or damage to nests potentially resulting in reckless injury or killing of nesting birds.

The removal of the woodland and grassland habitat should be undertaken outside of bird nesting season where possible (March – September). If this is not possible, the habitats should be subject to inspection by an Ecological Clerk of Works (ECoW) prior to removal. If



any birds' nests are found, a buffer zone will be placed around the nest where no works will occur. This buffer zone will remain in place until any chicks have fledged.

The vegetation removal should also be undertaken under the supervision of an ECoW to prevent the damage or destruction of any undiscovered birds' nests.

The lost woodland and grassland habitat will be replaced on a like for like basis. As part of the biodiversity net gain for the Site, two new hedgerows will be created with native species. In addition, the areas of grassland surrounding the BESS site are being enhanced to improved condition and additional grassland will be created. Areas of woodland are also being created to compensate for the temporary loss of woodland along the cable route. As a result of this, additional nesting and foraging opportunities for birds will be created which will be a **minor beneficial** impact of **slight** significance of effect.

No further impacts on birds are anticipated.

4.2.6 Bats

Habitats within the Site were considered ubiquitous to the local landscape and not likely to be an important resource for local bats. The woodland and hedgerows habitat offer suitable foraging, commuting and roosting habitat for bats.

The Proposed Development does not propose the direct loss of any identified potential roost features, either on the BESS Site or Cable Route. Temporary loss of woodland for construction of the cable route will provide additional foraging habitat as well as an additional commuting route. A planting of additional woodland and hedgerows will create permanent foraging habitat and additional commuting routes.

Lighting elements proposed at operation phase are expected to be minimal and motion triggered so impacts are likely to be minimal. Indirect disturbance of bat roosts, if present, should be avoided through cowlings of light sources during construction away from the features such as the woodland and hedgerows, and implementation of quiet working methodology.

Provided the above are implemented there will therefore be a **minor beneficial** impact on bats with a **slight** significance of effect.

4.2.7 Badger

No records for badger were identified during the desk study.

The habitats within the Site were considered to offer foraging habitat for badger with potential sett building opportunities within the hedgerows, although no setts or evidence of digging by the species was identified during the survey. Further habitats suitable for badger were present along the cable route within the woodland, hedgerow and arable habitat.

A preconstruction survey for badger will be undertaken within 3 months of the start of construction to ensure badgers have not moved into the area. Precautionary measures including:

- Keeping duration of groundworks as short as possible;
- Undertaking during the day works that might cause disturbance;
- Backfilling trenches and other excavations before nightfall, or leaving a ramp to allow badgers to easily exit; and
- Raising stored materials off the ground, e.g. on pallets.

The above measures and badger ecological features should be detailed within the CEMP.



Provided the above measures are implemented on Site, it is considered that works will not impact badgers and their setts.

The creation of hedgerows, woodland and other neutral grassland will provide increased foraging opportunities for badgers.

No further impacts on badgers are anticipated.

4.2.8 Red squirrel

Records for Red squirrel were returned by the desk study, although these were distant. Habitats on the BESS Site are unsuitable for red squirrel.

Woodland habitat which will need to be removed for the cable route could possibly support red squirrel although none were seen during surveys. A preconstruction survey will be undertaken to check for presence of dreys in any trees required for felling and to search for signs of red squirrel presence. Undertaking this will result in a **minor adverse** impact due to temporary habitat loss of **slight** significance of effect, but this will be reduced to negligible through the preconstruction survey and through additional woodland creation.

4.2.9 Fish

Potential Direct Impacts

No in channel work is expected to be undertaken in Knowsley Brook, with crossings being over an existing culvert and under by HDD. No impediments to eel movement are expected to be installed during the work. Therefore, there will be no significant direct impact on fish using Knowsley Brook.

Potential Indirect Impacts – dust and pollution

Standard pollution control and dust suppression measures detailed within a CEMP will be implemented to prevent dust and pollution impacts on the river. No further indirect impacts on fish using Knowsley Brook are predicted.

4.2.10 Invasive species

Potential Direct Impacts

Japanese knotweed has been identified as present along Knowsley Brook, and additional terrestrial and aquatic invasive species were returned by the data search.

The cable route work is not expected to include the known location of Japanese knotweed and will remain in the hard standing of the road therefore no contamination from this species is likely to occur.

No in channel work is expected to be undertaken in Knowsley Brook, with crossings being over an existing culvert and under by HDD. Therefore, there will be no significant direct impact on invasive species present in Knowsley Brook.

Briefings (tool box talks) will be given to all contractors working on the project to enable recognition of likely invasive species and understanding of actions to be taken should they be encountered.

Therefore, there will be no significant impacts related to invasive species as a result of the works.



4.3 Cumulative Effects

The proposed development can be considered as an isolated project that is not part of any more substantial construction activity. Given the relatively small scale of the proposed development, no significant cumulative effects on the environment are expected.

According to Knowsley Council's online planning application portal²³, there are four recent application proposals within close proximity to the Site.

These include:

- 24/00689/SO Screening opinion for proposed installation of solar farm (ground mounted photo voltaic (pv) panels to deliver c.20mw of renewable electricity);
- 23/02008/FUL Proposed development of a battery storage facility and associated infrastructure;
- 25/00123/FUL Variation of conditions 1 attached to planning permission 23/02667/ful (proposed development of a grid connection route between a battery storage facility and national grid Kirkby Substation) to allow for change in the route of the grid connection; and
- 22/00348/nma1 erection of 3 no. Commercial units (use class b2 or b8) including mezzanine floor, ancillary office and welfare floorspace together with service yard, loading bays, car and cycle parking, electric vehicle charging points, drainage infrastructure and landscaping together with improvements to public rights of way linking Ormskirk Road and Knowsley Lane including the diversion of the public right of way and other pedestrian accessibility works - non material amendment seeking an amendment to condition 2 to amend approved plans to alter the material of the parking areas from block paving to concrete and tarmac.

24/00689/SO

This planning application is a screening opinion for proposed installation of solar farm located immediately east of the Site. The Proposed Development comprises the installation of ground mounted Photo Voltaic (PV) panels to generate renewable electricity on land within the red line boundary of the site. It is anticipated that the development will involve arrays of ground mounted photo-voltaic (PV) panels, access tracks, a sub-station building and perimeter fencing. An indicative cable route proposed as part of the development extends from the west of the site access, travelling along Cut Lane and Molly's Lane towards the substation at L33 7TT.

The habitats impacted are largely arable fields with few boundary hedgerows with no likely potential to support protected species with the exception of use by wintering birds. As these are unlikely to use the habitats of the Kirkby BESS Site there is unlikely to be a significant cumulative effect on those species.

23/02008/FUL

Granted planning consent in relation to the development of a proposed Battery Energy Storage System (BESS) and associated infrastructure (the 'Proposed Development') on land off Coopers Lane, east of the Knowsley Industrial Estate, Knowsley, Merseyside.

The habitat impacted is an arable field with few boundary hedgerows with no likely potential to support protected species with the exception of use by wintering birds. As these are

²³ <https://planapp.knowsley.gov.uk/online-applications/spatialDisplay.do?action=display&searchType=ApplicationChecked> on 19th March 2025 for planning applications within 2 years.



unlikely to use the habitats of the Kirkby BESS Site there is unlikely to be a significant cumulative effect on those species.

25/00123/FUL

This planning application is a variation request relating to Planning permission 23/02667/FUL which was approved on 30th April 2024. Relates to minor amendment of red line boundary of the cable route.

22/00348/nma1

This is submission of a Non-Material Amendment to Condition 2 associated with application ref. 22/00348/FUL, relating to provision of plans for the development which has been consented.

This is located south of the A580 from Kirkby BESS Site and is therefore functionally separated from the Site so cumulative effects are unlikely.

Overall, the impacts of these development combined with the minor impacts of the Proposed Development are not considered likely to cause cumulative impacts upon local species or sites. This risk is reduced further through the mitigation proposed.

4.4 Proposed Mitigation, Compensation and Biodiversity Enhancement Measures

All mitigation, compensation and enhancement measures have been described above in Section 4.0 and are summarised below in **Table 4-1**.

The production of a CEMP for the Proposed Development is recommended, detailing the implementation of mitigation measures and enhancement features, and responsibilities for these measures, to prevent impacts to ecological constraints.

4.5 Summary of Effects

The development complies with the requirements of the local planning policy, noting in particular strategies 46 and 47 Policy CS2: Development Principles Principle 4h, and Policy CS8: Green Infrastructure 1b in the Knowsley Local Plan.

No significant impacts to the overall ecological value of the Site are anticipated, and the proposed habitat creation and enhancement will result in an increase in biodiversity value, opportunities for protected species, and habitat connectivity.

A summary of potential impacts, proposed mitigation, residual effects and, where relevant, proposed compensation measures is provided for each important ecological feature included in the assessment in **Table 4-1**.

Table 4-1 Summary of potential impacts

Ecological Feature	Potential Impacts	Proposed Mitigation and Enhancement	Means of Delivering Mitigation	Residual Effects
Statutory Designated Wildlife Sites	Indirect dust and pollution.	Dust suppression and pollution control measures will be employed during construction.	CEMP	None
Non-Statutory Designated Wildlife Sites	Indirect dust and pollution.	Dust suppression and pollution control measures will be employed during construction.	CEMP	None



Ecological Feature	Potential Impacts	Proposed Mitigation and Enhancement	Means of Delivering Mitigation	Residual Effects
Priority Habitat Hedgerows,	Potential loss of habitat	Creation of additional hedgerows will offer increased habitat and connectivity.	Landscape Plan, BNG	Positive at Site level
Knowsley Brook	Indirect dust and pollution.	Dust suppression and pollution control measures will be employed during construction. HDD used to avoid direct impact on Brook	CEMP, HDD	None
Other Habitats within the Site Other broadleaved woodland	Temporary loss of habitat.	Restoration planting along cable route. Additional planting at BESS Site	Landscape Plan, BNG	None
Invertebrates (Broad-bodied Chaser)	Loss of newly created ponds.	Existing Ponds are unlikely to be retained to allow successful breeding. Creation of SUDs pond will create a more permanent pond feature.	Landscape Plan, BNG	Positive at Site level
Amphibians	Potential killing, injury, or disturbance of individuals during vegetation removal.	Preconstruction HSI and eDNA survey of pond. Precautionary methods of working including timing, duration of works, backfilling openings or provision of escape ramps, raising stored materials	Survey. PWMS. CEMP	None
Nesting Birds	Loss of suitable habitat. Potential killing, injury, or disturbance of individuals and damage or destruction of nests during vegetation removal.	Lost habitats will be replaced on a like for like basis, and additional habitat and hedgerow creation will provide new foraging, commuting and sheltering opportunities. Phased cut of suitable habitat to be impacted under supervision of an ecologist.	ECoW supervision CEMP	Positive at Site level
Bats	Temporary loss of habitat.	Lost habitats will be replaced on a like for like basis, and additional habitat and hedgerow creation will provide new foraging, commuting and roosting opportunities.	Landscape Plan, BNG	Positive at Site level
Badger	Loss of Sett	Preconstruction survey to ascertain presence of Setts.	Survey	None

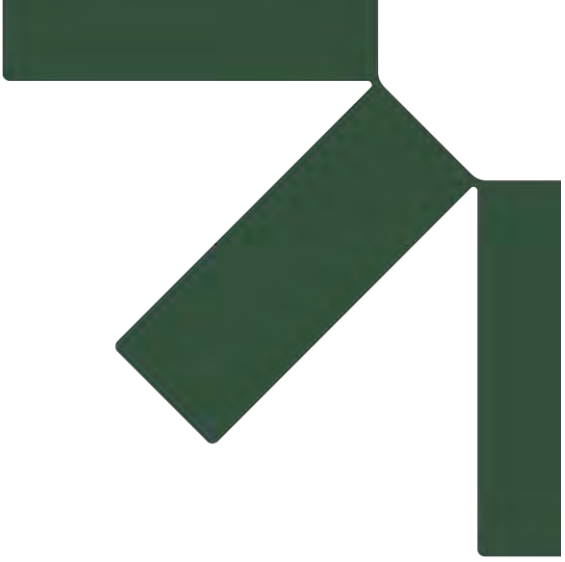


Ecological Feature	Potential Impacts	Proposed Mitigation and Enhancement	Means of Delivering Mitigation	Residual Effects
Red squirrel	Loss of habitat. Potential killing, injury, or disturbance of individuals and damage or destruction of dreys during vegetation removal.	Preconstruction survey to ascertain presence of Dreys. Lost habitats will be replaced on a like for like basis, and additional habitat creation will provide new foraging, commuting and nesting opportunities.	Survey, Landscape Plan, BNG	None
Fish	Indirect dust and pollution.	Dust suppression and pollution control measures will be employed during construction. HDD used to avoid direct impact on Brook	CEMP, HDD	None
Invasive species	Causing invasive species to spread	Avoidance of areas of known presence, tool box talks, HDD under Brook	CEMP, HDD	None

5.0 Conclusion

It is concluded that, provided the mitigation and compensation measures detailed within this report are implemented, the Proposed Development is unlikely to result in any significant negative impacts upon important ecological features and no contravention of relevant wildlife legislation is predicted.





Appendix A Site Location

Ecological Impact Assessment

Kirkby, Proposed Battery Energy Storage System

Pivoted Power LLP

SLR Project No.: 402.V08525.00024

21 March 2025



NOTES

1. All details are indicative only.

LEGEND

- PLANNING APPLICATION BOUNDARY
3.34HA
- VEHICLE PASSING POINT
- 3RD PARTY OVER HEAD PYLONS

05.	RLB Updated	20.03.25	JL	SRY
04.	RLB Updated	19.03.25	JL	SRY
03.	Passing points updated	27.02.25	JL	SRY
02.	Passing points indicated	24.02.25	JL	
01.	Cable route updated	30.01.25	JL	
Rev	Description	Date	Checked	

Drawing No.
KIR-EDFR-BESS-LAND-PLN-150.05

Project
Kirkby BESS

Title
Site Location Plan

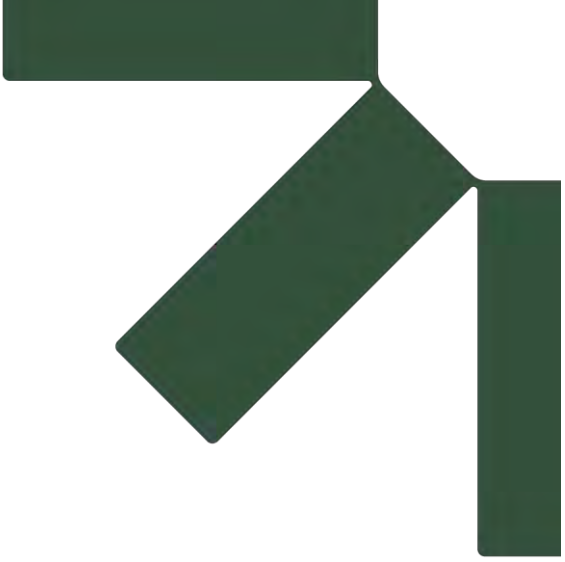
Scale
1:5000 @A3

Drawn by
JL

Checked
SRY

Date
16.01.25





Appendix B Site Layout Plan

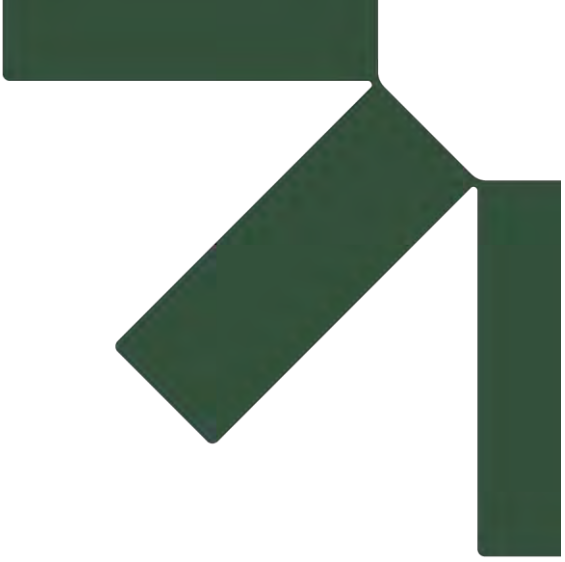
Ecological Impact Assessment

Kirkby, Proposed Battery Energy Storage System

Pivoted Power LLP

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21 March 2025



Appendix C MBB Search Area

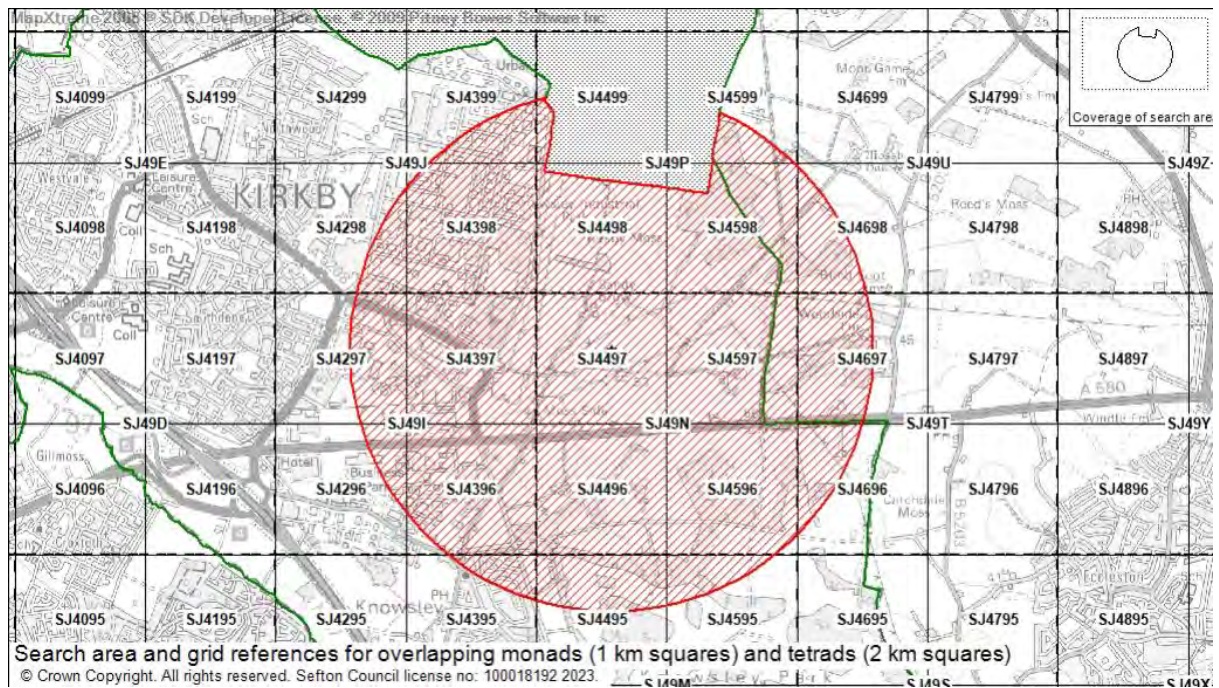
Ecological Impact Assessment

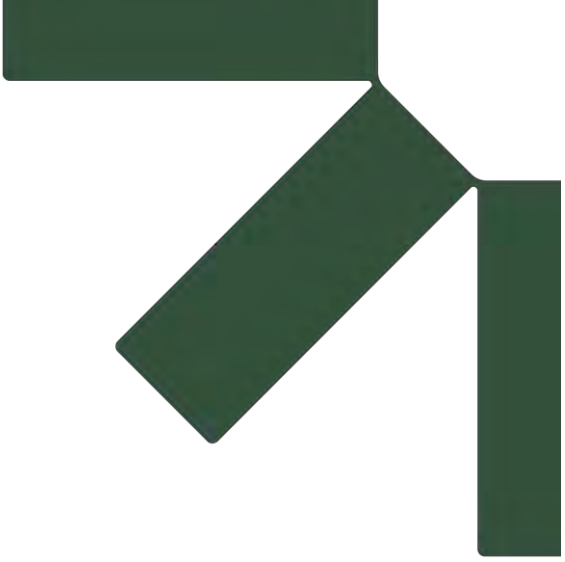
Kirkby, Proposed Battery Energy Storage System

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SLR Project No.: 402.V08525.00024

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Appendix D UK Habitat Map

Ecological Impact Assessment

Kirkby, Proposed Battery Energy Storage System

Pivoted Power LLP

SLR Project No.: 402.V08525.00024

21 March 2025



Secondary Codes:
16 - Tall Herbs
1171 - Mature Tree

LEGEND

Site Boundary

Individual Tree

Primary Habitat Classification

Heathland and Shrub - Hedgerows

h2a - Hedgerow Priority Habitat

Woodland and Forest - Broadleaved Mixed and Yew Woodland

w1g6 - Line of Trees

Rivers and Lakes - Rivers and Streams

r2b - Other Rivers and Streams

Cropland - Arable and Horticulture

c1a - Arable Field Margins

c1c - Cereal Crops

Grassland - Acid Grassland

g1c - Bracken

g1d - Other Lowland Acid Grassland

Grassland - Neutral Grassland

g3 - Neutral Grassland

g3c - Other Neutral Grassland

g3c5 - Arrhenatherum Neutral Grassland

g3c8 - Holcus-Juncus Neutral Grassland

Grassland - Modified Grassland

g4 - Modified Grassland

Heathland and Shrub - Dense Scrub

h3d - Bramble Scrub

h3h - Mixed Scrub

Sparsely Vegetated Land - Inland Rock

s - Sparsely Vegetated Land

Urban - Built-up Areas and Gardens

u1a - Open Mosaic Habitats on Previously Developed Land

u1b - Developed Land; Sealed Surface

u1b5 - Building

u1c - Artificial Unvegetated, Unsealed Surface

u1d - Suburban / Mosaic of Developed / Natural Surface

Woodland and Forest - Broadleaved Mixed and Yew Woodland

w1g7 - Other Broadleaved Woodland Types

KIRKBY SUBSTATION BATTERY

BIODIVERSITY NET GAIN

UK HABITAT SURVEY RESULTS

FIGURE 1.1

Scale1:5,000 @ A3

DateMARCH 2025



Secondary Codes:
16 - Tall Herbs
1171 - Mature Tree

- LEGEND**
- Site Boundary
 - Primary Habitat Classification**
 - Heathland and Shrub - Hedgerows*
 - h2a - Hedgerow Priority Habitat
 - Woodland and Forest - Broadleaved Mixed and Yew Woodland*
 - w1g6 - Line of Trees
 - Cropland - Arable and Horticulture*
 - c1c - Cereal Crops
 - Grassland - Neutral Grassland*
 - g3 - Neutral Grassland
 - g3c - Other Neutral Grassland
 - g3c8 - Holcus-Juncus Neutral Grassland
 - Heathland and Shrub - Dense Scrub*
 - h3h - Mixed Scrub
 - Sparsely Vegetated Land - Inland Rock*
 - s - Sparsely Vegetated Land
 - Urban - Built-up Areas and Gardens*
 - u1b - Developed Land; Sealed Surface
 - u1b5 - Building
 - u1c - Artificial Unvegetated, Unsealed Surface
 - u1d - Suburban / Mosaic of Developed / Natural Surface
 - Woodland and Forest - Broadleaved Mixed and Yew Woodland*
 - w1g7 - Other Broadleaved Woodland Types

KIRKBY SUBSTATION BATTERY

BIODIVERSITY NET GAIN

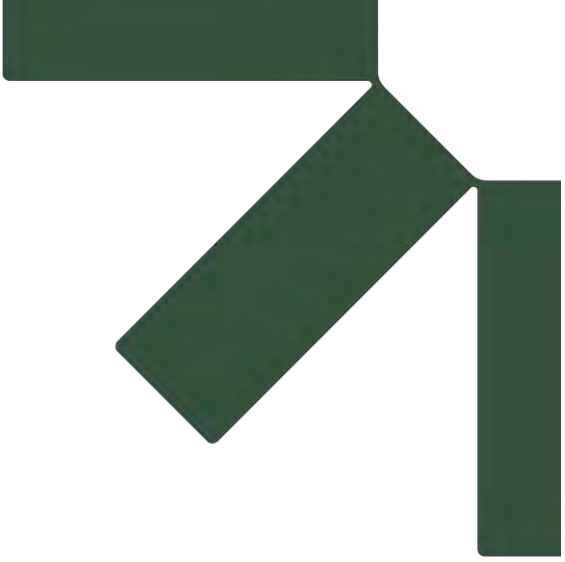
UK HABITAT SURVEY RESULTS

FIGURE 1.2

Scale1:2,000 @ A3

DateMARCH 2025





Appendix E Pond Location Map

Ecological Impact Assessment

Kirkby, Proposed Battery Energy Storage System

Pivoted Power LLP

SLR Project No.: 402.V08525.00024

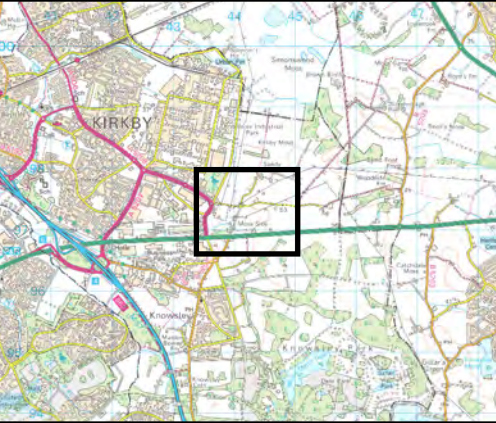
21 March 2025



LEGEND

- Site Boundary
- Pond Location

Pond Types
All Ponds are r1g - Other Standing Water

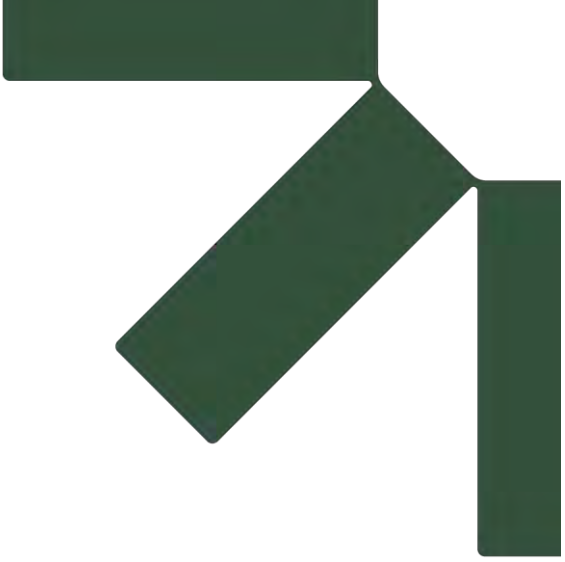


KIRKBY SUBSTATION BATTERY
PRELIMINARY ECOLOGICAL APPRAISAL
LOCATION OF PONDS

FIGURE C

Scale	1:5,000 @ A3	Date	MARCH 2025
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404.063902.00001.0009.1 Location of Ponds



Appendix F General Legislation

Ecological Impact Assessment

Kirkby, Proposed Battery Energy Storage System

Pivoted Power LLP

SLR Project No.: 402.V08525.00024

21 March 2025

Relevant Legislation and Planning Policy

Legislation

A summary of legislation relevant to (onshore) biodiversity in England and Wales is provided below. Note that the summary provided here is intended for general guidance only and the original legislation should be consulted for definitive information.

Environment Act (2021)

The Environment Act has wide ranging provisions including those around:

- Environmental governance;
- Environmental regulation;
- Waste and resource efficiency;
- Air quality and environmental recall;
- Water;
- Nature and biodiversity;
- Conservation covenants.

Of particular relevance is Part 6 of the Act which introduces “biodiversity gain in planning” and will apply in England to planning applications under the Town & Countryside Act and the Planning Act. Schedule 14 now requires that biodiversity gain be a condition of planning permission in England. These changes will be enacted through subsequent secondary legislation or regulations. This part of the Act also changes the responsibilities that Government or public bodies have by strengthening the existing NERC Act biodiversity duty. Public authorities are now required to seek to conserve and enhance biodiversity in the exercise of their functions.

Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended) (the Habitats Regulations) consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law. Under the Habitats Regulations it is an offence to deliberately capture, kill or disturb¹ wild animals listed under Schedule 2 of the Regulations as well as damage or destroy a breeding site or resting place of such an animal (even if the animal is not present at the time). European Sites, including Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), are also protected under the Habitat Regulations, and any proposal that could affect them will require an Habitats Regulations Assessment (HRA).

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017

Part 3 of the regulations provide for the protection of areas of habitats or species where maintenance of the status of water is an important factor. Under the regulations additional consideration may need to be given to sites in the form of a Water Framework Directive (WFD) assessment where a project

¹ Disturbance, as defined by the Conservation of Habitats and Species Regulations 2010, includes in particular any action which impairs the ability of animals to survive, breed, rear their young, hibernate or migrate (where relevant); or which affects significantly the local distribution or abundance of the species.



lies in proximity to a water body or to linked water bodies which could be affected. This includes consideration of whether water bodies are WFD receptors in particular those of high status or have high status morphology.

Natural Environment & Rural Communities (NERC) Act 2006

Section 40 of the NERC Act 2006 places a duty on public authorities to have regard to the purpose of conserving biodiversity in the exercise of their functions. Public authorities include government departments, local authorities and statutory undertakers.

Section 41 of the Act (Section 42 in Wales) requires the publication of a list of habitats and species publish which are of principal importance for the purpose of conserving biodiversity. The Section 41 list is used to guide authorities in implementing their duty to have regard to the conservation of biodiversity.

Note that Sections 40 and 42 were superseded in Wales by the Environment (Wales) Act 2016 (see below).

Protection of Badgers Act 1992

The Protection of Badgers Act 1992 makes it illegal to kill, injure or take a badger or to intentionally or recklessly interfere with a badger sett. Sett interference includes disturbing badgers whilst they are occupying a sett or obstructing access to it.

Wildlife & Countryside Act 1981

The Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way (CRoW) Act 2000 and the Natural Environment and Rural Communities (NERC) Act 2006, consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive), making it an offence to:

- Intentionally kill, injure or take any wild bird or their eggs or nests (with certain exceptions) and disturb any bird species listed under Schedule 1 to the Act, or its dependent young while it is nesting;
- Intentionally kill, injure or take any wild animal listed under Schedule 5 to the Act;
- intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any wild animal listed under Schedule 5 to the Act;
- intentionally or recklessly disturb certain Schedule 5 animal species while they occupy a place used for shelter or protection;
- Pick or uproot any wild plant listed under Schedule 8 of the Act; or
- Plant or cause to grow in the wild any plant species listed under Schedule 9 of the Act.

Planning Policy

A summary of national planning policy relevant to (onshore) biodiversity in England and Wales is provided below. Note that the summary provided here is intended for general guidance only and the original policy documents should be consulted for definitive information. For local planning policy relevant to biodiversity the relevant local plans should be consulted.



1.1.1 National Planning Policy (England)

The National Planning Policy Framework (NPPF)² sets out guidance for local planning authorities and decision-makers in how to apply planning policies when drawing up plans and making decisions about planning applications. Along with Government Circular 06/05², the broad policy objectives in relation to the protection of biodiversity and geological conservation in England through the planning system are set out. Specific policies relating to habitats and biodiversity are set out in paragraphs 174 and 179-182 of the NPPF.

Paragraph 174 states that:

“Planning policies and decisions should contribute to and enhance the natural and local environment by:

- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*
- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;*
- d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development f) should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*
- F) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate”.*

Paragraph 179 states that:

“To protect and enhance biodiversity and geodiversity, plans should:

- a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and*
- b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.”*

Paragraph 180 states that:

“When determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*

² Ministry of Housing, Communities & Local Government (2021). [National Planning Policy Framework](#).



d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.”

Paragraphs 181-182 relate to European sites (referred to as habitats sites) and state:

“The following should be given the same protection as habitats sites:

a) potential Special Protection Areas and possible Special Areas of Conservation;

b) listed or proposed Ramsar sites; and

c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.”





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