



OAKLANDS FARM SOLAR PARK

Applicant: Oaklands Farm Solar Ltd

Environmental Statement

Chapter 6 – Ecology

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Oaklands Farm Solar Park - Environmental Statement Volume 1

Chapter 6: Ecology

Final report
Prepared by LUC
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Chapter 6

Ecology

Introduction

6.1 This chapter considers the potential effects of the Proposed Development on Ecology and describes the method by which their significance will be assessed. This includes the legislative and policy background underpinning the assessment, proposed methods, baseline conditions, potential ecological impacts to be assessed, and the approach to mitigation and enhancement.

6.2 The Ecology assessment was undertaken by LUC.

6.3 This chapter is supported by the following appendices (including figures showing statutory and non-statutory designated sites and habitats) which are referred to throughout this chapter and found in **Volume 2 and Volume 3**:

- **Figure 6.1: Statutory Sites.**
- **Figure 6.2: Non-Statutory Sites.**
- **Figure 6.3: Indicative location of proposed mammal gaps.**
- **Figure 6.4: Ecological Features – Study Areas**
- **Appendix 6.1: Consultation Responses.**
- **Appendix 6.2: Report to Inform HRA (LUC, 2023).**
- **Appendix 6.3: Preliminary Ecological Appraisal: Oaklands Solar Farm and Grid Connection Route (Arcus, 2020).**
- **Appendix 6.4: Breeding Bird Survey Report: Oaklands Solar Farm (Arcus, 2020).**
- **Appendix 6.5: Phase 1 Habitat Survey Report (LUC, 2023).**
- **Appendix 6.6: Bat Survey Report (LUC, 2023).**
- **Appendix 6.7: Confidential Badger Survey Report (LUC, 2023).**

- **Appendix 6.8: Otter and Water Vole Survey Report (LUC, 2023).**
- **Appendix 6.9: Breeding Bird Survey Report (LUC, 2023).**
- **Appendix 6.10: Great Crested Newt Survey Report (LUC, 2023).**
- **Appendix 6.11: Reptile Report (LUC, 2023).**
- **Appendix 6.12: Biodiversity Net Gain Report (LUC, 2023).**
- **Appendix 6.13: River Condition Assessment (LUC, 2023).**
- **Appendix 6.14: Arboricultural Survey Report.**
- **Appendix 6.15: Important Hedgerow Assessment**
- **Appendix 5.6: Outline Landscape Ecological Management Plan.**

Scope of the Assessment

Effects Assessed in Full

6.4 The following ecological receptors were initially identified at the scoping stage for consideration in this assessment:

- Statutory Designated Sites, including European Designated Sites.
- Non-statutory Designated Sites.
- Habitats.
- Invasive Non-native Species.
- Bats.
- Reptiles.
- Badger.
- Otter.
- Water Vole.
- Breeding Birds.

6.5 Following the completion of appropriate field surveys, the scope of the assessment was refined to include only those receptors where significant impacts were possible:

- Statutory Designated Sites, including European Designated Sites.
- Non-statutory Designated Sites.
- Habitats.
- Invasive Non-Native Species.
- Bats.
- Reptiles (Drakelow Power Station area only).
- Badger.
- Otter.
- Breeding Birds.

6.6 The following effects were identified at the scoping stage for consideration in this assessment:

- Direct and indirect effects during the construction phase of the Proposed Development, include:
 - Direct Habitat Loss
 - Severance
 - Mortality
 - Physical disturbance
 - Noise and lighting disturbance
 - Contamination.
- Direct and indirect effects during the operational phase of the Proposed Development, include:
 - Physical disturbance
 - Noise and lighting disturbance
 - Changes in habitat management.

- Cumulative effects during construction and operation phases of development in relation to ecology.

Effects Scoped Out

6.7 On the basis of the desk based and field survey work undertaken, the professional judgement of the EIA team, experience from other relevant projects and policy guidance or standards, and feedback received from consultees, the following topic areas have been 'scoped out' of detailed assessment:

- Ancient woodland is scoped out of this assessment on the basis that there is no potential for significant effects to occur to this habitat type. No ancient woodland was recorded within the Site with the closest example located 30m to the east of Park Farm at Grove Wood. The Proposed Development will be implemented outside of the 15m buffer defined in line with Natural England and Forestry Commission standing advice for this woodland and as such no impacts are considered likely in relation to ancient woodland associated with Grove Wood. Details of this are presented in **Appendix 6.5: Phase 1 Habitat Survey** and **Appendix 6.14: Arboricultural Survey Report**.
- Great crested newt (GCN) is scoped out of this assessment on the basis that there is no potential for significant effects to occur to this species. The Proposed Development will not result in the loss of any ponds and will be focused in areas of arable and grazed grassland, which provide low suitability habitat for GCN in their terrestrial phase. Surveys, including Habitat Suitability Index (HSI) and eDNA surveys of all accessible ponds functionally connected to the Site within 250m was undertaken, which confirm likely absence of this species. Details of this are presented in **Appendix 6.3: Preliminary Ecological Appraisal: Oaklands Solar Farm and Grid Connection Route** and **Appendix 6.10: Great Crested Newt Survey Report**.
- Reptiles at Oaklands Farm and within the cable route corridor through the Park Farm area (excluding the Drakelow Power Station area) are scoped out of this assessment on the basis that there is no potential for significant effects to occur to this species. The Proposed Development will be focused in areas of arable and grazed grassland habitat of low or negligible suitability for reptiles with impacts to suitable habitat, such as hedgerow and scrub, being small-scale and localised in extent. No reptiles were recorded during surveys

at Oaklands Farm and as such the presence of this species is considered extremely unlikely. Details of this are presented in **Appendix 6.11: Reptile Survey Report**.

- Water vole is scoped out of this assessment on the basis that there is no potential for significant effects to occur to this species. The Site provides limited opportunities for water vole with primary opportunity for this species being the unnamed watercourse, which runs from the north of the Oaklands Farm area, through the Park Farm area, and the Fairfield Farm area. A field survey was undertaken of the unnamed watercourse, which confirmed the watercourse to have low suitability for this species with no signs recorded during the survey. Detail of this is presented in **Appendix 6.8: Otter and Water Vole Survey Report**.
- Dormouse is scoped out of this assessment on the basis that there is no potential for significant effects to occur to this species due to the low suitability of habitat present within the Site. The habitats present and affected do not provide the minimum extent, type, quality, or connectivity, required to support populations of this species.
- Wintering birds are scoped out of this assessment on the basis that there is no potential for significant effects to occur to these species given the distance of this Site from designated sites within known populations of wintering bird species. This is supported by a desk-based review of designated sites within 5km of the Site boundary as detailed in **Appendix 6.5: Phase 1 Habitat Survey Report**.
- Fish and aquatic invertebrates are scoped out of this assessment on the basis that there is no potential for significant effects to occur to these species. Watercourses within and adjacent to the Site are of low suitability for these species as they are low flowing and ephemeral habitats that do not contribute to key movement corridors along important watercourses and water catchment areas. Alongside this, the Proposed Development has been designed from the outset to provide embedded avoidance and mitigation measures as identified in paragraph 6.77, which provide certainty that any effects to these watercourses will be avoided.
- Protected and notable plant species are scoped out of this assessment on the basis that there is no potential for significant effects to occur to these species due to the simplicity and/or intensive management (e.g. arable and pastoral habitat) of the habitats that will be affected by the Proposed Development. This has been informed by a Phase 1 Habitat

Survey of which the findings are detailed in **Appendix 6.5: Phase 1 Habitat Survey Report**.

- Adverse impacts arising during the operation of the Proposed Development have been scoped out on the basis that there is no potential for significant effects to occur for all ecological receptors. The Proposed Development has been sensitively designed to include embedded mitigation, including provision of mammal gaps in fencing during construction and the only lighting proposed is alarm lighting located on top of the transformer units that will only operate in the event of a security breach. As such adverse effects during the operational phase are not considered likely to result in significant effects. In addition, due to the nature of the Proposed Development as a solar farm scheme, no significant disturbance or road mortality impacts will occur because there will be very low-level activity on site with traffic volumes kept to a minimum and a total of three site operatives present each day.

Assessment Methodology

Legislation, Planning Policy and Guidance

Legislation and Planning Policy

6.8 This assessment is carried out in accordance with relevant legislation and planning policy:

- The Wildlife and Countryside Act 1981¹.
- The Countryside and Rights of Way Act 2000 (CRoW Act)².
- The Natural Environment and Rural Communities Act 2006 (NERC Act)³.
- The Conservation of Habitats and Species Regulations 2017⁴.

¹ The Wildlife and Countryside Act 1981. Available at: <https://www.legislation.gov.uk/ukpga/1981/69>. [Accessed 29/09/23]

² The Countryside and Rights of Way Act (CRoW Act), 2000. Available at: <https://www.legislation.gov.uk/ukpga/2000/37/contents> [Accessed 29/09/23]

³ The Natural Environment and Rural Communities Act 2006. Available at: <https://www.legislation.gov.uk/ukpga/2006/16/contents> [Accessed 29/09/23]

⁴ The Conservation of Habitats and Species Regulations 2017. Available at: <https://www.legislation.gov.uk/uksi/2017/1012/contents/made> [Accessed 29/09/23]

- The Protections of Badgers Act 1992⁵.
- Hedgerow Regulations 1997⁶.
- The National Planning Policy Framework (2023)⁷.
- South Derbyshire District Local Plan Part 1 (Adopted June 2016)⁸.
- South Derbyshire Action Plan for Nature (2021)⁹
- Department for Energy and Climate Change. 2011. Overarching National Policy Statement for Energy (EN-1)¹⁰ and the November 2023 draft EN-1 to be designated¹¹.
- Department for Energy and Climate Change. 2011. National Policy Statement for Renewable Energy Infrastructure (EN-3)¹² and the November 2023 draft EN-3 to be designated¹³.
- Department for Energy and Climate Change. 2011. National Policy Statement for Electricity Networks Infrastructure (EN-5)¹⁴ and the November 2023 draft EN-5 to be designated¹⁵.

⁵ The Protections of Badgers Act 1992. Available at: <https://www.legislation.gov.uk/ukpga/1992/51/contents> [Accessed 29/09/23]

⁶ Hedgerow Regulations 1997. Available at: <https://www.legislation.gov.uk/uksi/1997/1160/contents/made> [Accessed 29/09/23]

⁷ Department for Levelling Up, Housing and Communities (2023) The National Planning Policy Framework. Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2> [Accessed 29/09/23]

⁸ South Derbyshire District Council (2016) Local Plan Part 1 (Adopted June 2016). Available at: <https://www.southderbyshire.gov.uk/our-services/planning-and-building-control/planning/planning-policy/local-plan/adopted-local-plan> [Accessed 29/09/23]

⁹ South Derbyshire District Council and Derbyshire Wildlife Trust (2021)

¹⁰ Department for Energy and Climate Change (2011) Overarching National Policy Statement for Energy. Available at: <https://assets.publishing.service.gov.uk/media/5a79522de5274a2acd18bd53/1938-overarching-nps-for-energy-en1.pdf> [Accessed 29/09/23]

¹¹ Department for Energy Security and Net Zero (2011) Draft Overarching National Policy Statement for Energy (EN-1). Available at: <https://assets.publishing.service.gov.uk/media/655dc190d03a8d001207fe33/overarching-nps-for-energy-en1.pdf> [Accessed 16/01/24]

¹² Department for Energy and Climate Change (2011) National Policy Statement for Renewable Energy Infrastructure (EN-3). Available at: <https://assets.publishing.service.gov.uk/media/5a79c422e5274a684690bf53/1940-nps-renewable-energy-en3.pdf> [Accessed 29/09/23]

¹³ Department for Energy Security and Net Zero (2011) Draft National Policy Statement for Renewable Energy Infrastructure (EN-3). Available at: <https://assets.publishing.service.gov.uk/media/655dc352d03a8d001207fe37/nps-renewable-energy-infrastructure-en3.pdf> [Accessed 16/01/24]

¹⁴ Department for Energy and Climate Change (2011) National Policy Statement for Electricity Networks Infrastructure (EN-5). Available at: <https://assets.publishing.service.gov.uk/media/5a74877840f0b61938c7e2d9/1942-national-policy-statement-electricity-networks.pdf> [Accessed 29/09/23]

¹⁵ Department for Energy Security and Net Zero (2011) Draft National Policy Statement for Electricity Networks Infrastructure (EN-5). Available at: <https://assets.publishing.service.gov.uk/media/655dc25e046ed400148b9dca/nps-electricity-networks-infrastructure-en5.pdf> [Accessed 16/01/24]

Overarching National Policy Statement for Energy (EN-1) and the November 2023 Draft EN-1 to be Designated

6.9 The National Policy Statement EN-1 (paragraph 5.3.3) states (with edits from the 2023 Draft NPS for designation, paragraph 5.4.17, in square brackets) that *“where the development is subject to EIA the applicant should ensure that the ES clearly sets out any effects on internationally, nationally and locally designated sites of ecological or geological conservation importance [including those outside England], on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity[, including irreplaceable habitats].”*

6.10 Paragraph 5.3.4 of the NPS EN-1 (paragraph 5.4.19 of the 2023 Draft NPS for designation) requires applicants to *“show how the project has taken advantage of opportunities to conserve and enhance biodiversity”*.

6.11 Paragraph 5.3.7 states that *“As a general principle, and subject to other policies, development should aim to avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives; where significant harm cannot be avoided, then appropriate compensation should be sought”*. The 2023 Draft NPS for designation includes a similar statement at paragraph 5.4.42.

6.12 Paragraph 5.3.9 states that, *“the most important sites for biodiversity are those identified through international conventions, European Directives”*. The 2023 Draft NPS for designation includes a similar statement at paragraph 5.4.4 but omits European Directives in line with Brexit). Paragraph 5.4.4 goes on to state *“The Habitats Regulations set out sites for which an HRA will assess the implications of a plan or project, including Special Areas of Conservation and Special Protection Areas”*. The government however gives them the same protection as classified sites. This also applies to Listed Ramsar sites and paragraph 5.4.5 of the draft EN-1 adds *“sites identified, or required, as compensatory measures for adverse effects on any other sites covered by this paragraph [HRA sites].”*

6.13 *“Sites of Special Scientific Interests (SSSIs) are also designated as sites of international importance and will be protected accordingly”* (paragraph 5.3.10 of the 2011 NPS and 5.4.7 of the 2023 Draft NPS for designation). Nature reserves are notified as SSSIs.

6.14 *“Where a proposed scheme is likely to have an adverse effect on an SSSI (either individually or in combination with other developments), development consent should not*

normally be granted” (paragraph 5.3.11 of the 2011 NPS and 5.4.8 of the 2023 Draft NPS for designation). An exception should only be made where *“the benefits (including need) of the development at the site, clearly outweigh both the impacts that it is likely to have on features of the site that make it of special scientific interest and any broader impact on the national network of SSSIs”* (paragraph 5.3.11. The 2023 Draft NPS for designation includes a similar statement at paragraph 5.4.8.).

6.15 *“Sites of regional and local biodiversity and geological interest, which include Regionally Important Geological Sites, Local Nature Reserves and Local Sites, have a fundamental role to play in meeting overall national biodiversity targets”*. The IPC (now Secretary of State) *“should give due consideration to such designations, however given the need for new infrastructure the designations should not be used in themselves to refuse development consent”* (paragraph 5.3.13 of the 2011 NPS). The 2023 Draft NPS for designation includes a similar statement at paragraph 5.4.12 but omits the last sentence referring to the IPC/Secretary of State.

6.16 *“Ancient woodland is a valuable biodiversity resource”* which once lost cannot be recreated, therefore the IPC (now Secretary of State) *“should not grant development consent for any development that would result in its loss or deterioration unless the benefits (including need) of the development in that location, outweigh the loss of the woodland habitat”* (paragraph 5.3.14). The 2023 Draft NPS for designation includes a similar statement at paragraph 5.4.14 and 15 but omits the last sentence referring to the IPC/Secretary of State.

6.17 Paragraph 5.3.17 states that *“Other species and habitats have been identified as being of principal importance for the conservation of biodiversity in England and Wales and thereby requiring conservation action”*. The IPC (now Secretary of State) *“should ensure that these species and habitats are protected from the adverse effects of development by using requirements or planning obligations”*. Where harm to habitats or species and their habitats are unavoidable consent should be refused unless the benefits (including need) of the development outweigh that harm. The 2023 Draft NPS for designation includes a similar statement at paragraph 5.4.16 15 but omits the last sentence referring to the IPC/Secretary of State.

6.18 Paragraph 5.4.33 to 5.4.34 of the draft NPS EN -1 for designation also states that *“Applicants should consider any reasonable opportunities to maximise the restoration, creation, and enhancement of wider biodiversity and the protection and restoration of the ability of habitats to store or sequester carbon as set out under Section 4.6”*. *“Consideration should be*

given to improvements to, and impacts on, habitats and species in, around and beyond developments, for wider ecosystem services and natural capital benefits, beyond those under protection and identified as being of principal importance.”

National Policy Statement for Renewable Energy Infrastructure (EN-3) and Draft EN-3 to be Designated

6.19 There is no mention of biodiversity in relation to Solar PV Farms in the 2011 NPS EN-3, however the draft NPS EN-3 addresses this topic.

- Paragraph 2.8.85 of the draft NPS EN-3 to be designated refers to sections 5.4 of the draft EN-1 for generic impacts, and then highlights specific considerations which apply to solar farms.
- *“The applicant’s ecological assessments should identify any ecological risk from developing on the proposed site”* (paragraph 2.10.76). Making use of an advising ecologist during the design process is also encouraged as this can ensure adverse impacts are mitigated, and biodiversity enhancements are maximised (paragraph 2.10.78).
- Paragraphs 2.10.80 to 2.10.81 state that *“Applicants should consider earthworks associated with construction compounds, access roads and cable trenching”*. *“Where soil stripping occurs topsoil and subsoil should be stripped, stored, and replaced separately in order to minimise soil damage and to provide optimal conditions for site restoration”*.
- Soil handling may be informed through a soil and Agricultural Land Classification (ALC) survey, with detailed guidance available in Defra’s guidance on Construction Code of Practice for the Sustainable Use of Soils on Construction Sites or any subsequent updates.
- *“The assessment should consider how security and lighting installations may impact on the local ecology”* (paragraph 2.10.82).
- Site boundary management should also be considered in the assessment (paragraph 2.10.83)
- The assessment should *“consider enhancement, management, and monitoring of biodiversity”* (paragraph 2.10.90).

South Derbyshire Local Plan (2016/2017)

6.20 Policy BNE3: Biodiversity of the Local Plan states that the local authority “*will support development which contributes to the protection, enhancement, management and restoration of biodiversity or geodiversity and delivers net gains in biodiversity*”.

6.21 Policy BNE7: Trees, Woodland and Hedgerows states that “*Where development is proposed that could affect trees, woodland and/or hedgerows which are important in terms of their amenity, ecological, landscape or historic value, developers will be expected to demonstrate that:*

- i) the layout and form of development have been informed by an appropriate arboricultural and/or hedgerow surveys; and*
- ii) development would not suffer from undue shading either now or in the future; and*
- iii) appropriate measures are secured to ensure adequate root protection and buffers around trees, woodland and hedgerows.”*

6.22 It also states that “*The felling of protected trees, groups of trees or woodland and/or removal of important hedgerows, will be considered in accordance with the relevant national guidance and regulations, taking account in particular of their amenity, ecological, landscape and historic value. Where protected trees and/or hedgerows are subject to felling or removal, a replacement of an appropriate number, species, size and in an appropriate location will normally be required.*”

6.23 “*Development proposals which will have a detrimental effect on important trees, woodland or hedgerows must satisfactorily demonstrate how the impact on biodiversity has been minimised and, wherever possible, a net biodiversity gain delivered through appropriate mitigation, compensation or offsetting, including through new planting or improved management of retained trees and hedgerows. New planting will be expected to be adequately managed to reach full maturity.*”

6.24 Further to this, it should be noted that in September 2023, South Derbyshire District Council declared an ecological emergency in response to the ongoing threat to wildlife and ecosystems.

Guidance

6.25 This assessment is carried out in accordance with the principles contained within the relevant guidance documents:

- CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal and Marine. Chartered Institute for Ecology and Environmental Management, Winchester¹⁶.
- CIEEM (2017), Guidelines for Preliminary Ecological Appraisal, 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester¹⁷.
- BSI (2013). BS 42020:2013: Biodiversity – code of practice for planning and development. British Standards Institution, Bristol¹⁸.
- Joint Nature Conservation Committee (2010). Handbook for Phase 1 habitat survey - a technique for environmental audit. JNCC, Peterborough¹⁹.
- Department for Environment, Food and Rural Affairs (2007). Hedgerow Survey Handbook: A standard procedure for local surveys in the UK. 2nd Edition. Defra, London²⁰.
- Natural England and Forestry Commission (2022). Standing Advice – Ancient woodland, ancient trees and veteran trees: advice for making planning decisions²¹.

¹⁶ CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal and Marine. Chartered Institute for Ecology and Environmental Management, Winchester.

¹⁷ CIEEM (2017), Guidelines for Preliminary Ecological Appraisal, 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.

¹⁸ BSI (2013). BS 42020:2013: Biodiversity – code of practice for planning and development. British Standards Institution, Bristol.

¹⁹ Joint Nature Conservation Committee (2010). Handbook for Phase 1 habitat survey - a technique for environmental audit. JNCC, Peterborough.

²⁰ Department for Environment, Food and Rural Affairs (2007). Hedgerow Survey Handbook: A standard procedure for local surveys in the UK. 2nd Edition. Defra, London.

²¹ Natural England and Forestry Commission (2022). Standing Advice – Ancient woodland, ancient trees and veteran trees: advice for making planning decisions.

- Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd ed.). The Bat Conservation Trust, London²².
- Oldham R.S, et al. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10 (4), 143-155²³.
- Biggs J. et al (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford²⁴.
- Harris, S., Cresswell, P. and Jefferies, D. (1991) *Surveying Badgers*, The Mammal Society, London²⁵.
- Andrews R. (2013). The classification of badger *Meles* setts in the UK: A review and Guidance for surveyors. In *Practice*, Winchester [82] 27- 31²⁶.
- Marchant, J. (1983) *Common Birds Census Instructions*. British Trust for Ornithology, Thetford²⁷.
- Strachan, R. and Moorhouse, T. (2006). *Water Vole Conservation Handbook*. Second Edition. Wildlife Conservation Research Unit, Oxford²⁸.

²² Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd ed.). The Bat Conservation Trust, London.

²³ Oldham R.S, et al. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10 (4), 143-155.

²⁴ Biggs J. et al (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.

²⁵ Harris, S., Cresswell, P. and Jefferies, D. (1991) *Surveying Badgers*, The Mammal Society, London.

²⁶ Andrews R. (2013). The classification of badger *Meles* setts in the UK: A review and Guidance for surveyors. In *Practice*, Winchester [82] 27- 31.

²⁷ Marchant, J. (1983) *Common Birds Census Instructions*. British Trust for Ornithology, Thetford.

²⁸ Strachan, R. and Moorhouse, T. (2006). *Water Vole Conservation Handbook*. Second Edition. Wildlife Conservation Research Unit, Oxford.

- Chanin, P. (2003). Monitoring the Otter Lutra. Conserving Natura 2000 Rivers Monitoring Series No.10. English Nature, Peterborough²⁹.
- Froglife (1999). Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth³⁰.

Consultation

6.26 In undertaking the assessment, consideration has been given to the scoping responses and other consultation which has been undertaken. A summary of this consultation is set out below with further detail in **Appendix 6.1: Consultation Responses**.

Table 6.1: Summary of Consultation Responses

| Key Consultees | Key issues raised by consultees | Response/Action Taken |
|--|--|---|
| Planning Inspectorate Derbyshire County Council Drakelow Parish Environment Agency Forestry Commission Natural England Rosliston Parish Council Walton on Trent Parish Council South Derbyshire District Council | <ul style="list-style-type: none"> ■ Scope of the assessment, including in relation to designated sites, ecological receptors and the extent of the Study Area. ■ Specifically, there were responses in relation to the assessment of European designated sites, including the River Mease SAC. ■ Specific consideration should also be given to GCN, barn owl and ground nesting birds, such as skylark. ■ Outlined that the requirement for protected species mitigation licenses should be specified in the ES Chapter. ■ The ES should include the assessment of all relevant | <ul style="list-style-type: none"> ■ This has been addressed within the ES Chapter and supporting appendices. ■ LUC has prepared a Report to Inform HRA (see Appendix 6.2) to provide evidence to enable the competent authority to assess the Proposed Development under the requirements of The Conservation of Habitats and Species Regulations 2017. ■ The ES Chapter has included additional provision of information on protected and notable species, including barn owl, GCN and skylark. |

²⁹ Chanin, P. (2003). Monitoring the Otter Lutra. Conserving Natura 2000 Rivers Monitoring Series No.10. English Nature, Peterborough.

³⁰ Froglife (1999). Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

| Key Consultees | Key issues raised by consultees | Response/Action Taken |
|--|--|---|
| Derbyshire County Council The National Forest Company | ecological receptors and should provide appropriate avoidance, mitigation and compensation measures that align with statutory legislation and best practice guidelines. | |
| | <ul style="list-style-type: none"> ■ A key issue raised was in relation to the location of the Proposed Development within the area of the National Forest and ensuring that this development project supported the delivery of National Forest objectives. | <ul style="list-style-type: none"> ■ LUC have consulted with the National Forest Company and have sought to include measures which complement the objectives of the project. |
| | <ul style="list-style-type: none"> ■ It has been advised that the Proposed Development should consider the delivery of a Biodiversity Net Gain Assessment. | <ul style="list-style-type: none"> ■ The ES includes a Biodiversity Net Gain Assessment using Defra Metric 3.1 and is provided in Appendix 6.12 and a separate River Condition Assessment, which is provided in Appendix 6.13. |
| | <ul style="list-style-type: none"> ■ Request to consult with relevant consultees, including the National Forest Company and Derbyshire Wildlife Trust. | <ul style="list-style-type: none"> ■ Relevant consultees have been consulted with on the Scoping Report and PEIR. Further to this, targeted consultation has been undertaken with the National Forest Company and Derbyshire County Council. |
| | <ul style="list-style-type: none"> ■ There was specific commentary on the protection and retention of veteran trees. This includes a request to update wording in line with Natural England guidance. | <ul style="list-style-type: none"> ■ Design considerations have ensured the protection and retention of all ancient and veteran trees from the outset. Locations of these trees are presented in the Arboricultural Survey Report (Appendix 6.14). ■ The ES Chapter has been updated to provide the correct reference to Natural England's Standing Advice document. |
| | <ul style="list-style-type: none"> ■ There were concerns raised in relation to habitat | <ul style="list-style-type: none"> ■ Mammal gaps will be provided in the fencing in specific locations |

| Key Consultees | Key issues raised by consultees | Response/Action Taken |
|----------------|--|---|
| | fragmentation for species, such as badger and hedgehog, as a result of the implementation of fencing associated with the Proposed Development. | as detailed in Figure 6.3. This will allow the movement of small mammals, including badger and hedgehog to disperse through the site. |
| | <ul style="list-style-type: none"> ■ Ecological survey and assessment should be completed in line with best practice guidance. | <ul style="list-style-type: none"> ■ Surveys have been completed within the appropriate timings of surveys. Details of these surveys are presented in Appendix 6.2-6.15. |
| | <ul style="list-style-type: none"> ■ Advised that a CEMP is prepared. | <ul style="list-style-type: none"> ■ A CEMP (Appendix 4.3) has been prepared as part ES submission. |
| | <ul style="list-style-type: none"> ■ Appropriate management of habitats in the long term delivery by way of a LEMP. | <ul style="list-style-type: none"> ■ An outline LEMP (Appendix 5.6) has been prepared as part of the ES submission, which provides high-level detail on the ecological enhancements and management. |

Study Area

6.27 The Study Area adopted in the assessment varies for each ecological feature depending on their mobility and sensitivity to environmental change. The Study Area for each ecological feature is defined in **Table 6.2** below and is in line with best practice guidance¹⁶. Detail of this is also presented in **Figure 6.4**.

Table 6.2: Study Area

| Desk Based Review | |
|-------------------------------------|--|
| Ecological Feature | Study Area |
| European Statutory Designated Sites | The Site, plus a 15km buffer ^{31, 32} . |
| Statutory Designated Sites | The Site, plus a 5km buffer |
| Non-statutory Designated Sites | The Site, plus a 2km buffer. |
| Protected Species Data | The Site, plus a 2km buffer. |
| Field Surveys | |
| Ecological Feature | Proposed Study Area |
| Habitats | The Site. |
| Invasive non-native species | The Site |
| Bats | The Site. |
| Reptiles | The Site (Drakelow Power station only) |
| Badger | The Site, plus a 50m buffer. |
| Breeding Birds | The Site, plus a 500m buffer. |

Desk Based Research and Data Sources

6.28 The following data sources have been used to inform this assessment:

³¹ The Report to Inform HRA assessed the potential for Adverse Effects on Integrity of European sites within 15km of the Proposed Development site.

³² A Study Area of 20km was applied for European sites that support bats as a qualifying feature. This aligns with recommendations made by The Planning Inspectorate.

- Arcus, (2020), Preliminary Ecological Appraisal: Oaklands Solar Farm and Grid Connection Route (see **Appendix 6.3**).
- Arcus, (2020), Breeding Bird Survey Report: Oaklands Solar Farm (see **Appendix 6.4**).
- Biological Records from Derbyshire Biological Records Centre (DBRC).
- Multi-Agency Geographical Information for the Countryside (MAGIC).
- Ordnance Survey (OS) mapping.
- Aerial Photography.

Field Survey

6.29 This Chapter has been informed by a series of technical field studies that detail relevant field survey methods and which are included in **Appendices 6.2 – 6.15**. Relevant surveys were undertaken within each of the four distinct areas (Oaklands Farm, Fairfield Farm, Park Farm and Drakelow Power Station) where considered appropriate. Each survey was completed by suitably experienced and qualified ecologists following current best practice methods. All surveys were completed within appropriate seasonal windows.

6.30 The field surveys carried out to inform this assessment are set out in **Table 6.3** below.

Table 6.3: Summary of Field Surveys

| Field Survey | Survey Dates ³³ |
|------------------------------------|--|
| Extended Phase 1 Habitat Survey | <p>Oaklands Farm: May and June 2020</p> <p>Park Farm: April 2021</p> <p>Fairfield Farm: April 2022.</p> <p>Drakelow Power Station: July 2022</p> |

³³ There are four distinct areas where the Proposed Development will be focussed and as such relevant surveys have been undertaken separately at Oaklands Farm (South), Fairfield Farm, Park Farm (North) and Drakelow Power Station with initial surveys conducted by Arcus in 2020 prior to LUC's involvement. Surveys were designed to consider all areas to be affected by the Proposed Development.

| Field Survey | Survey Dates ³³ |
|----------------------------------|--|
| | An updated site walkover was completed for the whole site in March 2023 and at Drakelow Power Station in September 2023. Details of which are presented in Appendix 6.5 . |
| Hedgerow Assessment | Oaklands Farm and Park Farm: September 2023. |
| Bat Roost Assessment | Oaklands Farm: May and June 2020 Park Farm: April 2021 Fairfield Farm: April 2022 Drakelow Power Station: July 2022, September 2023 |
| Bat Roost Survey | Oaklands Farm: July to September 2021 Park Farm: July to August 2021 |
| Bat Activity Survey | Oaklands Farm: August to September 2021 Park Farm: May to September 2021 |
| Bat Static Activity Survey | Oaklands Farm: August to September 2021 Park Farm: June to September 2021 |
| Great Crested Newt – eDNA Survey | Oaklands Farm: June 2020 Park Farm: April 2021 |
| Reptile Survey | Oaklands Farm: August to September 2021 Park Farm: N/A – no suitable habitat affected by Proposed Development was identified in relation to reptiles. |
| Badger Survey | Oaklands Farm: May and June 2020 Park Farm: August 2021 Fairfield Farm: April 2022 Drakelow National Grid Substation: July 2022 |

| Field Survey | Survey Dates ³³ |
|---------------------------|---|
| | An updated survey was undertaken in April 2022 for Oaklands Farm, Park Farm and Fairfield Farm. |
| Water Vole / Otter Survey | <p>Oaklands Farm: September 2021</p> <p>Park Farm: September 2021</p> <p>Fairfield Farm: April 2022 and June 2022</p> |
| Breeding Bird Survey | <p>Oaklands Farm: April to June 2020</p> <p>Park Farm: March to July 2021</p> <p>An updated survey at Park Farm and Oaklands Farm was undertaken in April and May 2023.</p> |

Assessing Significance

Determining Ecological Importance, Potential Impacts and Impact Significance

6.31 The assessment undertaken in this chapter is based on methods described in ‘Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Marine, and Coastal. (CIEEM 2018)¹⁶.

6.32 The guidelines recommend that the ‘importance’ of a given site in relation to each of its ecological features is determined within a defined geographical context. The geographical context as it relates to the Proposed Development is described in **Table 6.4** below.

Table 6.4: Ecological Importance Geographic Context

| Ecological Importance | Qualifying Criteria | Relevant Context |
|-----------------------|---|------------------|
| International | <p>A Study Area is considered of International Ecological Importance when it supports:</p> <ul style="list-style-type: none"> • An internationally designated site or candidate site (SPA, pSPA, Special Area of Conservation (SAC), candidate SAC, potential SAC, Ramsar site, Biogenetic Reserve) or an area which Natural England has determined meets the published selection criteria for such designations, irrespective of whether it has yet been notified. • A viable area of a habitat type listed in Annex 1 of the Habitats Directive, or smaller areas of such habitat which is essential to maintain the viability of that ecological resource at an international level. • >1% of the European Resource of an internationally important species, i.e. those listed in Annex 1, 2 or 4 of the Habitats Directive. | Europe |
| National | <p>A Study Area is considered of National Ecological Importance when it supports:</p> <ul style="list-style-type: none"> • A nationally designated site (SSSI, National Nature Reserve (NNR), Marine Nature Reserve) or a discrete area which Natural England has determined meets the published selection criteria for national designation irrespective of whether it has yet been notified. • A viable area of a Habitat of Principal Importance for Conservation, or smaller areas of such habitat which is | England |

| Ecological Importance | Qualifying Criteria | Relevant Context |
|-----------------------|---|-------------------|
| | <p>essential to maintain the viability of that ecological resource at a national level.</p> <ul style="list-style-type: none"> • A viable area of Ancient Semi-Natural or Ancient Replanted Woodland. • >1% of the National Resource of a regularly occurring population of a nationally important species, i.e. a Species of Principal Importance for Conservation and/or species listed on Schedules 1, 5 (S9 (1, 4a, 4b)) or 8 of the Wildlife and Countryside Act. • A regularly occurring and viable population of a UK Red Data Book species. | |
| County | <p>A Study Area is considered of County Ecological Importance when it supports:</p> <ul style="list-style-type: none"> • County sites and other sites which the designating authority has determined meet the published ecological selection criteria for designation, e.g. LNRs, CWSs. • Viable areas of legally protected habitat/habitat identified in County BAP, or smaller areas of such habitats, or important habitats such as ancient woodland, that are essential to maintaining the viability of the resource at a county level. • Any regularly occurring population of an internationally/nationally important species or a species in a relevant County BAP which is important for the maintenance of the regional meta-population. • Networks of species-rich hedgerows. | Derbyshire |

| Ecological Importance | Qualifying Criteria | Relevant Context |
|-----------------------|--|--|
| District | <p>A Study Area is considered of District Ecological Value when it supports:</p> <ul style="list-style-type: none"> • District sites and other sites which the designating authority has determined meet the published ecological selection criteria for designation, e.g. Sites of Nature Conservation Importance, Local Wildlife Sites. • Viable areas of legally protected habitat/habitat identified in a Local BAP or smaller areas of such habitats which are essential to maintaining the viability of the resource at a district level. • Any regularly occurring population of an internationally/nationally important species or a species in a Local BAP which is important for the maintenance of the viability of the feature at a district level. • Networks of habitat which contribute to ecological connectivity at a district level. | South Derbyshire |
| Local | <p>A Study Area is considered of Local Ecological Importance when it supports:</p> <ul style="list-style-type: none"> • Commonplace and widespread semi-natural habitats, e.g. scrub, poor semi-improved grassland, coniferous plantation woodland, intensive arable farmland etc. which, despite their ubiquity, contribute to the ecological function of the local area (habitat networks etc). • Very small, but viable, populations of internationally/nationally important species or a species in a Local BAP | Within a 5km radius of the Site |

| Ecological Importance | Qualifying Criteria | Relevant Context |
|-----------------------|--|------------------|
| | <p>which is important for the maintenance of the meta-population at the Local level.</p> <ul style="list-style-type: none"> • Networks of linear features, including species-poor hedgerows. | |
| The Site | <p>A Study Area is considered of Site Ecological Importance when it supports:</p> <ul style="list-style-type: none"> • Habitats of limited ecological value, e.g. amenity grassland, but which contribute to the overall function of the Site’s ecological function. • Common and widespread species, or very small numbers of protected and/or notable species which are widespread in the wider area, or that do not contribute particularly to the nature conservation status of wider populations, for example important sheltering or resting sites are absent. | The Site |

Impact Assessment

6.33 All potential impacts will be assessed against standard parameters as set out within the CIEEM guidance¹⁶ and through professional judgement. By using this approach, a scientific and repeatable method is applied whereby all aspects of a potential impact are considered. Impacts will be clearly identified as either adverse or beneficial.

6.34 Impacts will be considered for each scoped-in ecological feature, with reference to the following parameters (where relevant):

- **Beneficial or adverse**, determined in accordance with nature conservation objectives and policy.

- **Extent**, which is the spatial or geographical area of which the impact/effect may occur under a suitably representative range of conditions.
- **Magnitude**, which refers to size, amount, intensity and volume and should be quantified (if possible) and expressed in absolute or relative terms.
- **Duration**, which should be referred to in relation to ecological characteristics (where applicable) as well as human timeframes.
- **Frequency and Timing**, which is the number of times an activity occurs and where applicable should be referred to in relation to ecological characteristics (including life cycles).
- **Reversibility**, an irreversible effect is one from which recovery is not possible within a reasonable timescale, or there is no reasonable change of action being taken to reverse it.

6.35 A degree of confidence is assigned to assess the likelihood of an impact occurring. The following scale (as defined within the CIEEM guidance¹⁶) is referred to:

- **Certain/near certain**: probability estimated at >95%.
- **Probable**: probability estimated at 50 – 95%.
- **Unlikely**: probability estimated at 5 – 49%.
- **Extremely unlikely**: probability estimated at <5.

Determining Effect

6.36 Based on the above parameters, an impact is then considered to be either significant or not significant and likely to be either beneficial or adverse. An impact is significant if it has the potential to affect the integrity and/or the conservation status of a species. Technical definitions of integrity and conservation status follow the CIEEM guidance¹⁶. In summary, the conservation status of a habitat or species is determined by the sum of the influences acting on it that may affect its extent, structure and functions and distribution. Ecological integrity depends on an ecological feature being able to sustain its distinctive habitats and species and to ensure their continued viability.

6.37 With respect to biodiversity, best practice guidance advises that significance should not be defined as 'high', 'moderate' or 'low' due to the complexities of ecological processes. Therefore, all impacts defined as 'significant' are considered to be significant in the context of

the CIEEM guidance. Detail on how this relates to EIA terminology of minor, moderate and major is presented in paragraph 6.39 onwards.

6.38 In response to the above, and to ensure significant impacts on ecological features are still placed within an appropriate context, a geographical approach is adopted to determine the ecological value of a feature. Significance of an impact is then considered using the same geographic criteria. For example, a habitat on a site may be identified which is assessed to be of 'County Level' value as it meets the definition of a priority habitat within the County BAP. An impact may be predicted on this habitat which is considered to be significant 'at a County level'. However, it may be that such a small area of the habitat will be affected (for example), that the impact is considered to be significant at a lower ecological value, for example at the 'Site Level' only.

Alignment of the Ecology ES Chapter with the remainder of the ES

6.39 This assessment follows the method outlined in paragraphs 6.36 - 6.38, to determine the significance of effects and will include appropriate justification for each conclusion. However, to ensure congruency between the Ecology Chapter and the approach for the remainder of the EIA, the category of significant effects defined are as follows in the context of the EIA Regulations:

- International, National or Regional effect – Major.
- County, District – Moderate.
- Local, Site – Minor.

6.40 It should be noted that where an impact is considered not significant in line with CIEEM guidance, it is also not significant and as such negligible in the context of EIA regulations.

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

- **Major effect:** where the Proposed Development 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 Development 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.

- **Minor effect:** where the Proposed Development 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 Development 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.
- **Negligible:** where the Proposed Development is unlikely to cause a noticeable change from the baseline conditions on 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'.

6.42 For clarity the determination of significant effects has been carried out with reference to both the CIEEM EclA guidelines¹⁶ and the category of significant effect in the EIA Regulations.

Identifying Mitigation and Assessing Residual Significance

6.43 Where potential significant effects are identified, mitigation measures are identified to reduce their significance. The standard mitigation hierarchy applies, whereby the following sequential measures are considered.

- **Avoidance:** the effect is avoided by removing its pathway, e.g. by changing a proposed scheme's footprint.
- **Mitigation:** measures are taken to reduce the significance of the effect, e.g. vegetation clearance undertaken outside the bird nesting season to avoid disturbance and mortality effects.
- **Compensation:** where the effect cannot be reduced, alternative action is taken elsewhere within the site boundary or offsite.

6.44 Using the assessment method described above, where, despite embedded avoidance and mitigation measures, significant effects are identified, additional mitigation measures will be applied, and the impact reassessed to determine a residual significance. An important part of

this step is the identification of the likely success, or confidence in, the proposed mitigation measure.

Assessment Limitations

6.45 Ecological surveys are limited by a variety of factors which affect the presence of flora and fauna; for example climatic variation, season and species behaviour. Evidence of protected species is not always recorded during a survey. This does not mean that a species is absent; hence, the surveys also record and assess the ability of habitats to support species. All ecological surveys provide a snapshot of activity.

6.46 The routes of the bat activity transect were changed and updated in light of health and safety concerns in relation to the presence of livestock within certain fields during the survey. Nevertheless, the survey area continued to focus on key areas of increased suitability for bats that lie within the Site. Therefore, this is not considered a constraint to the survey findings.

6.47 During static bat monitoring, technical issues occurred with the detectors resulting in the loss of data between sunset and midnight in May 2021 for surveys at Park Farm and resulting in corruption of the data files for August 2021 at Oaklands. All other monthly static monitoring was however carried out successfully - including the months of optimal bat activity. Therefore, it is considered that sufficient static monitoring data was collected to give a robust overall picture of bat activity within the Site.

6.48 Habitat and protected species surveys conducted at Park Farm in 2021 were undertaken to inform a previous iteration of the design, which included for additional areas of the Park Farm landholdings and included consideration of the inclusion of solar panels within the fields in this area and as such survey effort was also focused in areas that are no longer included within the Site boundary. This additional information is considered beneficial in providing additional ecological context and does not represent a constraint because proposals in this area are now restricted to the installation of a cable route and temporary access track, which were accounted for as part of the previous scheme design iterations.

Baseline Conditions

Statutory Designated Sites

6.49 The River Mease SAC and SSSI were recorded 4.4km to the south of the Site. No further statutory designated sites were recorded within a 5km buffer of the Study Area.

6.50 Cannock Chase SAC, which is designated for bat species, was recorded 20km to the west of the Site.

Non-statutory Designated Sites

6.51 A total of 14 Local Wildlife Sites (LWS), four potential LWS (pLWS) and one nature reserve were recorded within 2km of the Site. This included Grove Wood LWS, which was recorded within the Site in the north at Park Farm and Coppershill Spinney pLWS adjacent to the Site in the west at Oaklands Farm. The remaining LWS and pLWS were located approximately 480m or more from the Site. Further detail is presented in **Appendix 6.5: Phase 1 Habitat Survey Report**.

Habitats

6.52 The Site supports a range of habitats, including the following main habitat types: arable fields and improved grasslands with smaller areas of semi-improved neutral grasslands, ponds, standing water, running water, species-rich and species-poor hedgerows, scrub, woodland, tall ruderal vegetation and bare ground. Further detail is presented in **Appendix 6.3: Preliminary Ecological Appraisal: Oaklands Solar Farm and Grid Connection Route** and **Appendix 6.4: Phase 1 Habitat Survey Report**.

Ancient and Veteran Trees

6.53 The Site supports a number of ancient and veteran trees as identified within **Appendix 6.14: Arboricultural Survey Report**.

Invasive Non-Native Species

6.54 Biological records provided by DBRC identified invasive species within the Site. Detail of this is presented in **Appendix 6.3: Preliminary Ecological Appraisal: Oaklands Solar Farm and Grid Connection Route** and **Appendix 6.5: Phase 1 Habitat Survey Report**.

6.55 Himalayan balsam *Impatiens glanulifera*, rhododendron *Rhododendron ponticum*, cherry laurel *Prunus laurocerasus* and buddleia *Buddleja davidii* were recorded within the Site at Drakelow Park and Power Station in July 2022 and cherry laurel was recorded adjacent to the Study Area at Park Farm in April 2022. In addition, a stand of Japanese knotweed *Fallopia japonica* was recorded near woodland approximately 400m to the east of the Site in the Park Farm area in May 2021.

Bats

6.56 Biological records provided by DBRC have identified a total of four bat species within 2km of the Site. This included common pipistrelle *Pipistrellus pipistrelle*, *Pipistrellus* sp, noctule *Nyctalus noctula*, brown long-eared *Plecotus auritus*, Daubenton's bat *Myotis daubentonii* and unidentified bat.

6.57 The majority of the Site comprises species-poor shortly grazed improved pastures and arable fields of low suitability for bats. Habitats of increased value relate to linear field boundaries and watercourses and woodlands located both within, and in close proximity to the Site.

6.58 The Site supports a number of trees identified as having bat roost suitability. This included 33 trees identified as having bat roost suitability at Oaklands Farm and a further 33 trees identified as having bat roost suitability in the cable route corridor at Park Farm and Fairfield Farm and 18 trees identified as having bat roost suitability, including one tree, which was a confirmed roost, at Drakelow Park and Power Station as identified in **Appendix 6.3: Preliminary Ecological Appraisal: Oaklands Solar Farm and Grid Connection Route** and **Appendix 6.5: Phase 1 Habitat Survey Report**. Of these trees, five trees at Oaklands Farm, were subject to further emergence/re-entry surveys, due to earlier design iterations, which had potential to impact upon these trees. No bat roosts were recorded in these trees.

6.59 Bat roost suitability survey was also undertaken at the Park Farm area that is now located outside of the Site, which identified 11 trees as having low bat roost suitability, nine

trees as having moderate bat roost suitability and three trees identified as having high bat roost suitability. Of these trees, three at the Park Farm area were subject to further emergence/re-entry surveys to inform earlier design iterations that had potential to impact upon these specific trees identified as having bat roost suitability. No bat roosts were recorded in these trees. This area at Park Farm has now been excluded from the Site. Additionally, a further two trees were identified as having low bat roost suitability, one tree as having moderate bat roost suitability and one tree as having high bat roost suitability at Fairfield Farm. These trees were surveyed to inform a previous iteration of the scheme design.

6.60 In addition, the mosaic of habitats present within, and in the vicinity of, the Site, including hedgerows, woodlands and waterbodies, provides suitable opportunities for bat species to forage and commute. Bat activity surveys and static activity surveys were undertaken at the Park Farm and Oaklands Farm areas between June and September 2021.

6.61 Further detail, including locations of trees having bat roost suitability, is provided in **Appendix 6.3: Preliminary Ecological Appraisal: Oaklands Solar Farm and Grid Connection Route** and **Appendix 6.6: Bat Survey Report**.

Reptiles (Drakelow Power Station only)

6.62 The assessment of effects on reptiles within the Site was scoped out (see paragraph 6.7). Biological records provided by DBRC have identified three reptile species within 2km of the Site. These are grass snake, adder and common lizard.

6.63 Drakelow Power Station supports areas of scrub, woodland and rough grassland considered to provide optimal habitat for reptiles to forage, shelter, bask and disperse.

Badger

6.64 Biological records provided by DBRC have identified badger within 2km of the Site. Detailed information relating to badgers is provided in **Confidential Appendix 6.7**. Signs of badger and their setts were recorded within, and in close proximity to, the Site. The Site supported optimal habitats for badger to forage and create setts, including woodland, scrub and hedgerows and grasslands.

Otter

6.65 Biological records provided by DBRC have identified otter within 2km of the Site. The Study Area supports an unnamed watercourse that runs through the Site and two offsite ponds, including one to the east and one to the west at Park Farm immediately adjacent to the Study Area, which was considered to provide opportunities for this species for forage and shelter. All habitats supported dense vegetation with scrub, trees or woodland which provided cover and resting opportunities. These habitats were also connected to good quality habitat for otter in the wider landscape, including the River Trent, River Tame, River Mease, Trent and Mersey Canal and a large number of lakes to the west.

6.66 No signs of otter were recorded during the survey, however there were incidental records of otter prints and feeding remains (freshwater mussels), which were recorded on the unnamed watercourse during a River Condition Assessment on 13th June 2022, and a potential otter holt with an associated slide was recorded along the unnamed watercourse during a River Condition Assessment on 31st March 2023.

Breeding Birds

6.67 The breeding bird survey area and findings is shown in **Appendix 6.4: Breeding Bird Survey (Arcus)** and **Appendix 6.9: Breeding Bird Survey (LUC)**.

6.68 The Site supports suitable habitat for a range of farmland bird species. Breeding bird surveys of the southern portion of the Site at the Oaklands Farm area identified a total of 56 bird species, including 22 species of conservation concern. The Study Area was considered to have limited potential for Schedule 1 bird species, with the exception of barn owl, which was recorded.

6.69 A total of 28 skylark territories were recorded within the Breeding Bird Study Area (as shown in **Appendix 6.4**) with a total of 19 skylark territories (singing males), representing c.0.001% of the UK population recorded within the Site boundary. Skylark are widespread as a breeding species in Derbyshire and not included as a Priority Species in the South Derbyshire Action Plan for Nature (2021). The land at Oaklands Farm is intensively managed for crop production and grassland pastures are subject to agricultural improvement and intensive cattle grazing. This is likely to reduce the success of nesting for this ground nesting species, due to trampling by livestock, increased predation in autumn grown crops (and fewer broods) and from

low availability of invertebrate and seed sources. As a result, the current land use at Oaklands Farm is considered to be sub-optimal for successful nesting attempts by skylark and it is therefore considered highly unlikely that the nineteen observed singing males represent nineteen successful breeding pairs within the Oaklands farm area. Overall current land use at Oaklands Farm, is considered likely to reduce the success of ground nesting species.

6.70 Breeding bird surveys of the Park Farm area in 2021 recorded a relatively low diversity of bird species comprising mainly common species of low conservation value. Low numbers of farmland birds of conservation concern were recorded.

6.71 Updated breeding bird surveys completed in 2023 recorded a similar breeding bird assemblage as the surveys summarised above (see **Appendix 6.9**).

Ecological Importance of the Study Area

6.72 The ecological importance of the Study Area for designated sites, constituent habitats and species is considered below. These are considered separately below and have been undertaken with reference to geographical context, in line with the criteria set out in **Table 6.4** and outlined in **Table 6.5** below.

Table 6.5: Ecological Importance Geographic Context

| Ecological Receptor | Feature | Assessment of Ecological Importance | Ecological Importance in the Study Area |
|---------------------|--------------------------------|--|--|
| Designated Sites | Statutory designated sites | <p>A Study Area is considered of International and National Ecological Importance when it supports an internationally or nationally designated site. The River Mease SAC, Cannock Chase SAC and the River Mease SSSI occur within the Study Area and therefore the Study Area is of International Importance for SACs and of National importance for the SSSI on account of the presence of these sites.</p> <p>Statutory designated sites within the study area are shown in Figure 6.1.</p> | <p>International (SACs) National (SSSIs)</p> |
| | Non-statutory designated sites | <p>A Study Area is considered of District Ecological Value when it supports district designated sites and other sites which the designating authority has determined meet the published ecological selection criteria for designation, such as LWS. The Study Area supports a total of 14 LWS, four pLWS and one nature reserve, including Grove Wood LWS, which lies in the north of the Site at Park Farm and Coppershill Spinney pLWS, which lies adjacent to the Site at Oaklands Farm in the west.</p> <p>Non-statutory designated sites within the Study Area are shown in Figure 6.2</p> | District |

| Ecological Receptor | Feature | Assessment of Ecological Importance | Ecological Importance in the Study Area |
|---------------------|---|---|---|
| Habitats | Semi-natural Broadleaved Woodland / Mixed Plantation Woodland | <p>A small block of woodland habitat was recorded in the north at Oaklands Farm and a mosaic for semi-natural and plantation woodland was recorded at Drakelow Power Station. A Study Area is considered of National Ecological Importance when it supports a viable area of a Habitat of Principal Importance for Conservation, or smaller areas of such habitat which is essential to maintain the viability of that ecological resource at a national level.</p> <p>These habitats are located within the National Forest Area and as such these habitats contribute to the objectives of the National Forest Strategy. Therefore, this habitat is considered of value at the National level.</p> | National |
| | Scattered Trees (including ancient and veteran) | <p>The Study Area supported scattered trees, including veteran and mature trees, in the centre of fields and along hedgerows, which are of notable ecological interest. A Study Area is considered of County Ecological Importance when it supports viable areas of legally protected habitat/habitat identified in County BAP, or smaller areas of such habitats, or important habitats that are essential to maintaining the viability of the resource at a county level. This habitat is important for maintaining the viability of this resource in the Study Area and contributes to the objectives of the National Forest Strategy. Therefore, this habitat is considered of value at the County level.</p> | County |
| | Hedgerows | <p>The Study Area supported a network of hedgerows, which contributes to the ecological function of the local area by providing valuable habitat networks. A Study Area is considered of Local Ecological Value when it supports viable areas of legally protected habitat/habitat identified in a Local BAP or smaller areas of such habitats which are essential to maintaining the viability of the resource at a district level. This habitat type is a priority habitat in the Lowland Derbyshire Biodiversity Action Plan and is important for ensuring habitat connectivity between pockets of woodland and scrub habitat, which lie</p> | Local |

| Ecological Receptor | Feature | Assessment of Ecological Importance | Ecological Importance in the Study Area |
|---------------------|---------------------------------|---|---|
| | | within the National Forest Area. Due to this, this habitat is considered of value at the Local level. | |
| | Standing Water | Ponds and wet ditches were recorded within the Study Area. A Study Area is considered of Local Ecological Importance when it supports commonplace and widespread semi-natural habitats, which contribute to the ecological function of the local area. Ponds are a priority habitat in the Lowland Derbyshire Biodiversity Action Plan. The extent of this habitat within the Study Area was limited, however these habitats contribute to the ecological function of the local area and as such is considered of value at the Local level. | Local |
| | Running Water | An unnamed watercourse was recorded running through the Study Area providing an important ecological corridor to habitats in the wider area, including ditches, ponds and rivers. A Study Area is considered of Local Ecological Importance when it supports commonplace and widespread semi-natural habitats, which contribute to the ecological function of the local area. This habitat was there considered of value at the Local level. | Local |
| | Semi-improved neutral grassland | <p>Semi-improved neutral grassland was recorded within the Study Area. This habitat was restricted to two small fields of neutral grassland in the north adjacent to the woodland block and along the field margins at Oaklands Farm and in a small area at Drakelow Power Station.</p> <p>A Study Area is considered of Site Ecological Importance when it supports habitats of limited ecological value, but which contribute to the overall function of the Site's ecological function. Due to the limited extent of these habitat types in the Study Area, these habitats were considered to be of value at the Site level.</p> | Site |

| Ecological Receptor | Feature | Assessment of Ecological Importance | Ecological Importance in the Study Area |
|---------------------|----------------|---|---|
| | Other Habitats | The majority of the Study Area was comprised of arable and improved grassland with smaller areas of scrub, poor-semi-improved grassland, tall ruderal vegetation and bare ground. A Study Area is considered of Local Ecological Importance when it supports commonplace and widespread semi-natural habitats, which contribute to the ecological function of the local area. These habitats are common and widespread in the wider landscape and the Study Area does not provide an important function in maintaining their viability at a geographic scale beyond the Site level. | Site |
| Species | Breeding birds | The Study Area supported suitable habitat for a range of farmland bird species. The habitats present within the Study Area are considered to be common and widespread, however, they contribute to the ecological function of the local area and are considered important for the maintenance of the metapopulation for nesting birds at the Site level. This is with exception to skylark, whereby the Study Area was considered of district ecological value when it supports populations of national important species, such as Species of Principal Importance for Conservation and/or species listed on Schedules 1, 5 or 8 of the Wildlife and Countryside Act. | Site to District |
| | Bats | The Study Area itself primarily supported habitats of low suitability for bats comprising of arable and improved grassland with habitats of greater value located along the linear field boundaries, including hedgerows, woodland, scrub and watercourse, which provided opportunities for bats to forage, commute and roost. The presence of these features within the Study Area are likely to be important for the maintenance of the meta-population of bats at the Local level. In light of the above, the Study Area was considered to be of value at the Local level for bats. | Local |

| Ecological Receptor | Feature | Assessment of Ecological Importance | Ecological Importance in the Study Area |
|---------------------|--|--|---|
| | Badger | The Study Area was considered to provide optimal habitat for badger to forage and create setts. Due to this and the numerous signs of badger were recorded within, and in close proximity to, the Study Area, it was considered that the local meta-population of badger rely on the habitats within the Study Area. In light of the above, the Study Area was considered to be of value at the Local level for badger. | Local |
| | Otter | The Study Area provided suitable opportunities for otter with the unnamed watercourse, which is connected to good quality habitat for otter in the wider landscape, providing suitable habitat for this species to forage and shelter. No signs of otter were recorded during the field surveys, however incidental records identified otter prints and feed remains and a potential otter holt with an associated slide along the unnamed watercourse. Due to the absence of important sheltering and resting sites within the Study Area, this species was not considered to contribute particularly to the nature conservation of the wider population and therefore, the Study Area was considered to be of value at the Site level for otter. | Site |
| | Invasive Species | The Study Area supported Himalayan balsam, rhododendron, cherry laurel in the north in the Drakelow Power Station area and cherry laurel was recorded adjacent to the Study Area boundary at Park Farm. Due to the limited extent of these species, it was considered that the presence of these species to be of value at the Site level. | Site |
| | Reptiles (Drakelow Power Station only) | The Study Area at Drakelow Power Station supported areas of scrub and rough grassland considered to provide optimal habitat for reptiles to forage, shelter, bask and disperse. The presence of these features is considered likely to support small numbers of this species and is considered unlikely to contribute to the nature conservation status of the | Site |

| Ecological Receptor | Feature | Assessment of Ecological Importance | Ecological Importance in the Study Area |
|---------------------|---------|---|---|
| | | wider population. Therefore, the Study Area was considered to be of value at the Site level for reptiles. | |

Future Baseline in the Absence of the Proposed Development

6.73 In the absence of the Proposed Development, the ecological value of the Site will remain largely as it is at present in the short to mid-term. In the long-term the predicted effects of climate change are also likely to influence the future ecological status of the Study Area to some extent. The UK Climate Projections (UKCP18), which predicts that there will be extreme temperatures and changes in precipitation that will result in hotter, drier summers and milder, wetter winters. This may result in changes to ecological features through an increase in invasive species diversity and range, changes to vegetation assemblages and contraction/ expansion of range in faunal species.

Implications of Climate Change

6.74 The predicted effects of climate change are likely to influence the future ecological status of the Study Area whether the Proposed Development is implemented or in the absence of the Proposed Development.

6.75 The Proposed Development will provide ecological enhancements, which will increase the resilience of ecological features to climate change. These enhancements are detailed in the outline Landscape and Ecological Management Plan (LEMP) in **Appendix 5.6**. This includes the following outline measures: retention and enhancement of grassland, creation and enhancement of hedgerows, creation of woodland habitat and tree planting, including in areas along the riparian corridor in the north of Oaklands Farm; and creation of meadows along the field margins and in more open areas. These measures will improve the ecological connectivity in the Site and the wider area, enhancing opportunities for species to disperse and adapt to climatic change³⁴ in habitat types and distribution and provide additional resources for species through the creation of habitats of higher ecological value and which provide a clear ecosystem service.

³⁴ Natural England (2020), Climate Change Adaptation Manual: Evidence to support nature conservation in a changing climate

6.76 The LEMP for this Proposed Development will be monitored and periodically reviewed over the lifetime of the Proposed Development (40 years) to ensure that it is be effectively implemented in response to climate change. Further detail of this is provided in Section 5 of the Outline LEMP (contained within **Appendix 5.6**).

Design Considerations and Embedded Mitigation

6.77 Ecological input has been provided from the outset of the project to ensure impact avoidance and mitigation is in-built to the Proposed Development.

6.78 Key considerations included:

- Locating the Proposed Development in areas with habitats of local value or below, such as improved grassland and arable fields, where impacts can be successfully mitigated.
- Retention of ancient and veteran trees and ancient woodland habitat.
- Retention of species-rich hedgerows where possible. A 5m buffer will be implemented between the Proposed Development infrastructure and the retained hedgerows.
- Retention of trees with high and moderate bat roost suitability and application of appropriate buffer distances during works.
- Enhancing the quality and connectivity of habitats through the Site by restoring and creating hedgerows, woodland understory planting with trees and species-rich grassland.
- Increased provision of attenuation measures and coarser vegetation within and around the solar arrays will reduce surface run-off and nutrient enrichment associated with current cattle/sheep farming and as such providing water quality benefits to minor watercourses and ditches in the locality.
- Proposed fencing around the solar arrays will include mammal gaps at the base of the fence to allow dispersal of mammals, including badger and hedgehog.

6.79 Best practice construction measures will be followed to avoid or minimise potential impacts. Full detail of this is presented in the Construction Environmental Management Plan (CEMP) (**Appendix 4.3**). Measures include:

- Secure storage and safe disposal of any materials and substances to prevent accidental contamination.
- Prevention or reduction of dust through timing of works or damping down.
- Control of surface water runoff, including from damping down, to prevent contamination of waterbodies.
- Compliance with tree protection measures detailed within BS 5837:2012. Tree protection fencing will be implemented around retained trees and woodland within the immediate vicinity of the Proposed Development. This will include a protection buffer of at least 15m from ancient woodland associated with Grove Wood LWS to the north of the Park Farm area and which lies in close proximity to the proposed cabling route and for any ancient or veteran trees a buffer zone at least 15 times larger than the diameter of the tree.
- Trees identified as having low bat roost suitability will be felled using soft felling techniques. This will involve the section felling of trees and then gently lowering each section in a controlled manner to ground. The sections will be left for at least 24 hours with the features in an upright position to enable bats to vacate. This would be completed at a sensitive time of year in spring/autumn to avoid the breeding season.
- A pre-construction badger survey will be undertaken by an ecologist to update the sett locations and status at least three months prior to construction.
- All badger setts will be demarcated prior to works.
- Any vehicle traffic within close proximity of a badger sett will be subject to a 5mph speed limit.
- No construction works will be undertaken within 30m of an active badger sett during the breeding season between November and June inclusive.
- Any works undertaken within 30m of a badger sett which cannot be avoided, will be completed under a Natural England badger disturbance licence as necessary. Mitigation measures required under the licence may include timing of works to avoid the breeding season and adapting working methods to minimise disturbance.
- A construction method statement/toolbox talk will be provided in relation to badger to ensure that precautionary methods are followed, including safe storage of materials and

substances, measures to prevent badger becoming trapped in excavations or materials, and control measures including construction traffic speed controls.

- Pre-inspection checks for otter signs in the vicinity of works and appropriate working practices to avoid disturbance including no night-time working, sensitive construction lighting and appropriate working buffers.
- All otter holts will be demarcated prior to works.
- No construction works will be undertaken within 30m of an otter holt.
- Any vehicle traffic within close proximity of an otter holt will be subject to a 5mph speed limit.
- Suitable bird nesting habitat, including hedgerows and trees for non-ground nesting birds and arable and grassland for ground nesting bird species, that will be removed as part of the Proposed Development will be undertaken outside of the bird nesting season between March and August (inclusive). Where this is not feasible, the removal of these habitats will be completed under a watching brief by an ECoW.
- Detailed drainage design to ensure that operational phases do not contribute to polluted run-off or increase surface flows entering watercourses.
- Capping of any exposed pipe systems when contractors are off site and providing exit ramps from any exposed trenches or holes.
- Construction mitigation measures to be implemented in accordance with best practice to prevent impacts from dust, noise, runoff or other potential pollutants.
- Production of a silt management plan referencing the protection of overland flow paths and all watercourses within and adjacent to the Site. Soil stockpiles to be located away from overland flow paths and water bodies, and outside of the SAC catchment, and to be seeded as soon as possible, covered with geotextile mats and/or surrounded by a bund.
- Any temporary site drainage system to be developed to prevent silt-laden run-off being discharged into sewers or surface watercourses.
- Mud to be controlled at entrance/exit to the Site using wheel washes and/or road sweepers.
- Avoidance of site run-off of water or mud. Construction method statement specifying best practices measures for silt/runoff, pollution prevention measures and groundwater/other

hydrological maintenance during piling and other works in close proximity to watercourses such as silt traps, bunds, interception features.

- Tools and plant to be washed and cleaned in designated areas within the Site compound (including designated concrete wash-out areas) where runoff can be isolated for treatment before discharge to watercourse/ground or sewer under appropriate consent.
- Fuel and other potentially polluting chemicals to be stored in a secure impermeable and bunded storage area outside the River Mease SAC catchment.
- Refueling and maintenance to be undertaken within the Site compound away from all watercourses within or adjacent to the Site and outside the River Mease SAC catchment.
- Fixed plant to be self-bunded, mobile plant to be kept clean and in good working order, and fitted with drip trays, where appropriate.
- Spillage kits and oil absorbent material to be carried by mobile plant and located at vulnerable locations (e.g. crossings of land drains/ditches).
- Secure Site to prevent vandalism events which could lead to pollution.
- An emergency response plan will be prepared as part of the CEMP and prior to construction. The emergency response plan will include (but not be limited to) chemical/fuel spillage, flood events, fire, explosions, structural collapse.
- All construction staff to be trained to respond to spillages, and how to use emergency response equipment.
- Discharges of water abstracted from excavations/ or dewatering of aquifers to be subject to quality attenuation measures as required.
- Toolbox talks or other training to be provided to site staff on relevant site environmental issues to ensure precautionary working methods are adhered to.
- Construction activities will take place with adherence to detailed mitigation measures (including timing of works and pollution prevention measures).
- Monitoring during the construction and operational phases to ensure an appropriate feedback loop is in place, allowing remedial measures and operational refinements to be identified and implemented if required.

- Pre-construction inspections for invasive non-native species and, if required, the provision of appropriate buffer zones and an eradication programme. Any invasive species within or adjacent to the Site will be demarcated prior to works and will be subject to chemical/manual treatment prior to and during works in accordance with a CEMP, with long-term eradication prescriptions to be detailed and implemented through a LEMP.
- Implementation of appropriate biosecurity measures in accordance with best practices construction measures.
- Mammal gaps will be provided within the fencing proposed as part of the Proposed Development, which will allow the continued movement of small mammals, including badger through the Site. These gaps will be 20-30cm in size. Indicative locations of proposed mammal gaps are shown in **Figure 6.3**.

Assessment of Construction Effects

6.80 The assessment of effects is based on the project description as outlined in **Chapter 4: Project Description**. Unless otherwise stated, potential effects identified are considered to be negative.

6.81 As set out in paragraphs 6.39 - 6.44 the CIEEM guidance has been used to categorise the significance of each predicted effects with these then being presented in the context of the EIA Regulations.

Predicted Construction Effects

6.82 The predicted construction effects to ecological features is provided in **Table 6.6** below, in line with CIEEM guidance and where required EIA Regulations as outlined in para 6.36 - 6.38 above.

Table 6.6: Summary of construction effects

| Ecological Receptor | Predicted Construction Effects |
|-------------------------------|--|
| Designated Site | <p><u>Contamination</u></p> <p>The River Mease SAC and SSSI are located 4.4km to the south of the Site. There is potential for these designated sites to be hydrologically connected to the Proposed Development site and as such be adversely affected by contamination from surface water run-off via existing watercourses, ditches and field drains. However, the provision of embedded mitigation as part of the CEMP, such as the application of best practice run-off and pollution control methods, would ensure that the predicted impact of contamination would be extremely unlikely and therefore not significant at any geographic level (negligible in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> |
| Non-statutory Designated Site | <p><u>Direct Habitat Loss</u></p> <p>Proposed Development will result in the temporary loss of intensively grazed and fertilized improved grassland habitat within the western boundary of Grove Wood LWS during construction activities, including trenching to install the underground cable route corridor. It is certain that the Proposed Development will not result in the loss of ancient and semi-natural oak woodland for which the LWS is designated as it is located outside of the Site at 30m to the east at the closest point. Therefore, it is predicted that impacts from the Proposed Development in relation to direct habitat loss will be extremely unlikely and therefore not significant at any geographic level (negligible in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> <p><u>Physical Disturbance</u></p> <p>Grove Wood LWS was recorded within the Site with the area of ancient woodland for which the LWS is designated for located 30m from the Site. Due</p> |

| Ecological Receptor | Predicted Construction Effects |
|---------------------|---|
| | <p>to the distance of this habitat and given that the area for construction is located outside of the root protection area as detailed in the arboricultural report (Appendix 6.14), impacts from construction as a result of root compaction and damage to tree roots is considered extremely unlikely and therefore not significant (negligible) in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> <p>In relation to Copperhill Spinney pLWS, which is recorded adjacent to the Site, the area of construction is located outside of the root protection area and therefore impacts from construction as a result of root compaction and damage to tree roots are considered extremely unlikely and therefore not significant at any geographic level (negligible in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> <p><u>Contamination</u></p> <p>Construction activities have the potential to impact the nearby Grove Wood LWS as a result of dust, run-off, pollution and changes in air quality associated with construction of the proposed cable route. This would be short-term during the construction period with impacts being localised, small in extent and reversible. However, the provision of embedded mitigation as part of the CEMP would ensure that the predicted impact of contamination would be extremely unlikely and therefore not significant at any geographic level (negligible in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> |
| Habitats | <p><u>Direct Habitat Loss</u></p> <p>The Proposed Development will result in the temporary loss of grassland and localised sections of the unnamed watercourse, and the permanent loss of arable fields, small, localised sections of hedgerow and scrub. The installation of the solar arrays, cable trenching, construction access tracks and</p> |

| Ecological Receptor | Predicted Construction Effects |
|---------------------|---|
| | <p>supporting infrastructure will primarily result in the loss of habitats of low ecological value, including improved grassland and arable land but will also result in the loss of discrete sections of hedgerow, scrub, trees and watercourse. In light of this, it is certain that impacts from direct habitat loss will result in a significant adverse effect at the Site (minor effect and not significant in the context of the EIA Regulations), Local (minor effect and not significant in the context of the EIA Regulations) and County (moderate effect and significant in the context of the EIA Regulations) levels prior to mitigation.</p> <p><u>Physical Disturbance</u></p> <p>The provision of embedded mitigation as part of the CEMP, including the application of sensitive working practices such as the provision of site protection fencing, would ensure that impacts associated with physical disturbance of retained habitats, such as from compaction and damage from vehicle movements and excavation would be extremely unlikely, and therefore not significant at any geographic level (negligible in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> <p><u>Contamination</u></p> <p>It is certain that construction activities will result in impacts to the unnamed watercourse as a result of dust, run-off, pollution and changes in air quality associated with construction of the proposed cable route. This would be short-term during the construction period with impacts being localised, small in extent and reversible. However, the provision of embedded mitigation as part of the CEMP would ensure that the predicted impact of contamination would be extremely unlikely and therefore not significant at any geographic level (negligible in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> |

| Ecological Receptor | Predicted Construction Effects |
|---------------------|---|
| Invasive Species | <p><u>Physical Disturbance</u></p> <p>Himalayan balsam, rhododendron, cherry laurel and buddleia were recorded in the north of the Site at Drakelow Power Station, and cherry laurel was recorded west of the Site at Park Farm. Development is proposed at Drakelow Power Station and will involve construction activities, including excavation of trenches to install the underground cable route. It is extremely unlikely that the Proposed Development will result in the spread of these species as part of construction activities because embedded mitigation as part of the CEMP would ensure that best practice working measures in the vicinity of invasive species are applied. Therefore, the predicted impact of physical disturbance would be extremely unlikely and therefore not significant at any geographic level (negligible in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> |
| Bats | <p><u>Direct Habitat Loss</u></p> <p>It is certain that the Proposed Development will result in the permanent loss of discrete sections of hedgerow, scrub and trees used by bats to forage and commute to allow the provision of underground cabling, access tracks and visibility splays. This will include the permanent loss of trees identified as having low bat roost potential.</p> <p>The majority of the habitats that will be lost as a result of the Proposed Development will comprise of habitat of low suitability for bats, including improved grassland, bare ground and arable habitat, which provide sub-optimal opportunities for foraging and commuting habitat for bats. The permanent and temporary loss of these habitats are considered unlikely to impact bat species using the Study Area.</p> <p>In light of this, it is predicted that impacts from direct habitat loss will result in a significant adverse effect at the Site level prior to mitigation (minor effect</p> |

| Ecological Receptor | Predicted Construction Effects |
|---------------------|--|
| | <p>in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> <p><u>Mortality</u></p> <p>It is certain that the Proposed Development will result in the permanent loss of trees identified as having low bat roost suitability. Due to the low likelihood of a bat roost being present, it is unlikely that this would result in the mortality of bats roosting in these features in the absence of further mitigation. However, the provision of embedded mitigation as part of the CEMP would ensure that the predicted impact of mortality would be extremely unlikely and therefore not significant at any geographic level (negligible in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> <p><u>Noise, Lighting and Vibration Disturbance</u></p> <p>Construction activities will be undertaken in close proximity to trees identified as having bat roost suitability. However, given the nature of the proposed construction works, which will be restricted to the installation of the cable route corridor and access tracks, it is expected that impacts from increased noise and vibration will be short and temporary. In addition, during construction the Proposed Development will include the provision of lighting to provide safe working conditions for personnel and to provide security. This lighting will be restricted to key areas within the Study Area albeit expected that proposed works will be limited to daylight hours only and will be directed downwards, as such is considered extremely unlikely to these species.</p> <p>The provision of embedded mitigation as part of the CEMP would ensure that the predicted impact of noise, lighting and vibration would be extremely unlikely and therefore not significant at any geographic level (negligible in</p> |

| Ecological Receptor | Predicted Construction Effects |
|---------------------|---|
| | the context of the EIA Regulations). This is not significant in the context of EIA Regulations. |
| Reptiles | <p><u>Direct Habitat Loss/Mortality (Drakelow Power Station only)</u></p> <p>Drakelow Power Station provides suitable habitat for reptiles. It is probable that the Proposed Development will result in the loss of a small area of suitable scrub and woodland habitat for reptiles to install a section of underground cabling and access track. However, the provision of embedded mitigation as part of the CEMP would ensure that the predicted impact of mortality only would be extremely unlikely and therefore not significant at any geographic level (negligible in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> |
| Badger | <p><u>Direct Habitat Loss/Physical Disturbance</u></p> <p>The Proposed Development includes for the provision of a small number of solar arrays, underground cabling and access track within 30m of several badger setts. All badger setts will be retained by the Proposed Development. However, it is possible for construction activities to result in the damage and disturbance badger setts prior to mitigation as a result of activities, such as excavation works and vehicle incursion.</p> <p>There will also be the loss of grassland and arable habitat, which is likely to be used by badger to forage and disperse into the wider area.</p> <p>The Study Area is considered of Local importance to this species, and as such impacts from direct habitat loss and physical disturbance has the potential to result in a significant adverse effect at the Local level prior to mitigation (minor effect in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> <p><u>Mortality</u></p> |

| Ecological Receptor | Predicted Construction Effects |
|---------------------|---|
| | <p>Killing of badger could occur from traffic collision, trapping of badgers in excavations and encroachment of construction activities resulting in sett collapse. Construction activities will be undertaken during the daytime and as such the likelihood of mortality for this species is considered unlikely. However, in the event that this occurred the impact would be considered permanent and irreversible. The provision of embedded mitigation as part of the CEMP would ensure that predicted impact in relation mortality would be extremely unlikely and therefore not significant at any geographic level (negligible in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> <p><u>Noise and Vibration Disturbance</u></p> <p>Given the proximity of a number of setts to the Site, it is probable that construction activities will result in increased noise and vibration within 30m of known badger setts, including main setts, and as such cause disturbance to badger. It is expected that the duration of the source of impact would be short-term given the nature of proposals will not require extensive construction works to implement the solar arrays and associated infrastructure. The provision of embedded mitigation as part of the CEMP would ensure that predicted impact in relation noise and vibration disturbance would be extremely unlikely and therefore not significant at any geographic level (negligible in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> <p><u>Habitat Fragmentation</u></p> <p>The Proposed Development will include the provision of fencing around the solar arrays. It is probable that this will affect the short-term dispersal of this species in the Study Area, however, it is expected that this species will adapt to changes from the inclusion of fencing in the long-term. The Study Area is of Local importance for this species and as such impacts from habitat</p> |

| Ecological Receptor | Predicted Construction Effects |
|---------------------|---|
| | <p>fragmentation has the potential to result in significant adverse effects to occur at the Local level prior to mitigation (minor effect in the context of the EIA Regulations). This is not significant in the context of the EIA Regulations. This is not significant in the context of EIA Regulations.</p> |
| Otter | <p><u>Direct Habitat Loss</u></p> <p>No habitat used by otter for sheltering will be affected by the Proposed Development. The Proposed Development will result in temporary construction activities, such as trenching and installation of culverts, in discrete locations along the unnamed watercourse to install the underground cable route and access tracks. The provision of embedded mitigation as part of the CEMP, including the requirement for daytime working and pre-inspection for signs of otter prior to works, would ensure that predicted impact in relation to direct habitat loss would be extremely unlikely and therefore not significant at any geographic level (negligible in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> <p><u>Mortality</u></p> <p>Killing of otter could occur from traffic collision during construction, however as construction activities will occur during the daytime, location of the access track routes and number of vehicles accessing the Proposed Development site, impacts in relation to mortality are considered extremely unlikely. The provision of embedded mitigation as part of the CEMP would ensure that predicted impact in relation to mortality would be extremely unlikely and therefore not significant at any geographic level (negligible in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> <p><u>Noise and Vibration Disturbance</u></p> |

| Ecological Receptor | Predicted Construction Effects |
|---------------------|---|
| | <p>The Proposed Development will include construction activities in and near to the unnamed watercourse. Therefore, it is possible that this will result in increased noise and disturbance and as such cause disturbance to otter. It is expected impacts will be short-term, localised and small in extent with the majority of the construction activities located in areas away from habitat suitable for use by otter. The provision of embedded mitigation as part of the CEMP would ensure that predicted impact in relation to disturbance would be extremely unlikely and therefore not significant at any geographic level (negligible in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> <p><u>Contamination</u></p> <p>It is certain that construction activities will result in impacts to the unnamed watercourse as a result of dust, run-off, pollution and changes in air quality associated with construction of the proposed cable route. This would be short-term during the construction period with impacts being localised, small in extent and reversible. However, the provision of embedded mitigation as part of the CEMP would ensure that the predicted impact of contamination of habitats used by this species would be extremely unlikely and therefore not significant at any geographic level (negligible in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> |
| Breeding Birds | <p><u>Direct habitat loss</u></p> <p>It is certain that the Proposed Development will result in the loss of discrete areas of bird nesting habitat, including small sections of hedgerow and trees, in the medium to long term (prior to maturation of replacement planting (approximately 10 years)). The habitat types affected are generally those of low value to nesting birds or those likely to support common and widespread species only. The Proposed Development will not result in the loss of nesting or foraging habitat for Schedule 1 species, such as barn owl. Therefore, it is</p> |

| Ecological Receptor | Predicted Construction Effects |
|---------------------|---|
| | <p>predicted that impacts from direct habitat loss, for breeding bird assemblages, are significant adverse at the Site level only (excluding skylark) prior to mitigation (minor effect and not significant in the context of the EIA Regulations).</p> <p>In relation to skylark, a total of 19 territory holding males were recorded within the Site boundary with a further nine recorded holding territory offsite within the breeding bird study area. The Proposed Development will result in the permanent loss of the majority of open habitat which this species favours for nesting attempts. The Site is currently intensively managed for both arable crop production with evidence of crop drilling in autumn months, which is known to reduce the number of skylark breeding attempts per year, and presence of cattle grazing, which is likely to significantly reduce the nesting success of the existing baseline skylark population at the Site, As a result, the current land use at Oaklands Farm is considered to be sup-optimal for successful nesting attempts by skylark and it is therefore considered highly unlikely that there are nineteen successful breeding pairs within the Oaklands Farm area. Therefore, impacts are considered to be significant adverse at the Local level only, prior to mitigation (a minor effect in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> <p><u>Mortality</u></p> <p>In the absence of mitigation whereby construction could commence during the nesting season, it is near certain that habitat removal during the breeding season would result in the mortality of nesting birds, including ground nesting species, such as skylark, and/or their eggs/young. The impact would be short-term during site clearance and the populations of species affected would be expected to recover in the short term and would therefore not affect the contribution of the Study Area to bird populations. The provision of embedded mitigation as part of the CEMP would ensure that predicted impact in relation to mortality would be extremely unlikely and therefore not significant at all</p> |

| Ecological Receptor | Predicted Construction Effects |
|---------------------|--|
| | <p>geographic levels for all breeding bird assemblages (including skylark) (negligible in the context of the EIA Regulations). This is not significant in the context of EIA Regulations.</p> <p><u>Noise and Vibration Disturbance</u></p> <p>Disturbance to nesting birds in the wider area, including noise from adjacent construction works, may possibly result in the abandonment of nests and/or a reduction in nesting productivity or survival. However, given the nature of the Proposed Development, construction activities to implement the solar arrays and associated infrastructure are not expected to require extensive construction and would result in short-term impacts that would be extremely unlikely to affect the distribution, diversity and integrity of the breeding bird population associated with woodland, scrub and hedgerows. Therefore, it is predicted that impacts from noise and vibration disturbances will be extremely unlikely and not significant for breeding birds (excluding skylark) at any geographic level (minor effect and not significant in the context of the EIA Regulations).</p> <p>In relation to skylark, this species relies on open grassland and arable land to nest and as such it is probable that impacts from noise and vibration will impact this species distribution and integrity within the Site. The provision of embedded mitigation as part of the CEMP would ensure that predicted impact in relation to disturbance would be extremely unlikely and therefore not significant at any geographic level (minor effect and not significant in the context of the EIA Regulations).</p> |

Additional Construction Mitigation

6.83 Additional mitigation measures required to address those effects identified as significant in the above impact assessment are detailed below. These will be delivered through a

Landscape and Ecological Management Plan (LEMP) (**Appendix 5.6**), which would be secured by way of a requirement in the Development Consent Order (DCO).

6.84 This will include the provision of the following measures:

- Measures to mitigate the impact of habitat loss, damage, disturbance and contamination during construction will be dealt with via a LEMP.
- Replacement roost features, such as bat boxes will be installed prior to the loss of trees identified as having low bat roost suitability.
- Proposals will include the provision of tree, scrub and hedgerow planting, which will mitigate the loss of the small number of trees and localised sections of hedgerow and scrub that will be lost during construction. Proposals will include for the replacement of grassland habitat, including species-rich grassland along the edges of the fields and in more open areas of the Site. Provision of bird boxes, including for barn owl.
- Additional planting will be provided, including hedgerow and tree planting will mitigate the loss of nesting bird habitats.
- Habitat creation and management as outlined by the LEMP. This includes the provision of planting of hedgerows, scrub and woodland within and in the wider area of the Site, the creation of species-rich grassland, particularly along the boundaries of the field and in open areas where solar arrays are not proposed and enhancement of existing ditches and watercourse. Specifically, creation of species-rich grassland will be focused on providing additional benefit for species, such as skylark, by providing suitable habitat for foraging and nesting, and will mitigate for impacts to badger arising from habitat fragmentation by providing alternative, more suitable habitat for these species to forage, disperse and to build new setts.

Residual Construction Effects

6.85 Through the implementation of additional mitigation measures identified, all construction effects will be reduced to **not significant** in CIEEM terms and in the context of the EIA Regulations for designated sites, habitats and species (excluding for breeding birds – skylark) and improved to **significant beneficial** for invasive species at the Site level (**not significant** in

the context of the EIA Regulations) as a result of eradication of these species, as detailed in **Table 6.8** below. Although habitat enhancement and creation is proposed, these measures will not reach maturity until the operational phase, and therefore positive residual effects relating to habitat creation and management are not predicted until the operational phase.

6.86 In relation to skylark, **significant adverse effects at the Local level** cannot be fully mitigated given this species' reliance on open habitats and the nature of the Proposed Development, which will result in the loss of this openness. Although, it is not feasible to fully mitigate for loss of potential nesting habitat within the Proposed Development, skylark nesting within the Site boundary is expected to be focused within larger expanses of species-rich grassland located in field corners at the edges of the solar arrays. Furthermore, the provision of a significant BNG, and subsequent management through the LEMP, is expected to provide better quality foraging resource for skylark in the wider landscape. Indeed, there is emerging evidence to show that solar farms with favourable ecological management and which provide BNG through the diversification of grassland habitats, provide optimal foraging habitat for this species and can improve nesting success for nests located within offsite habitat^{35, 36}. Reference should be made to **Appendix 6.9: Breeding Bird Survey** and **Appendix 5.6: Outline Landscape Ecological Management Plan**. This effect is minor and not significant in the context of the EIA Regulations.

Assessment of Operational Effects

6.87 The assessment of effects is based on the project description as outlined in **Chapter 4: Project Description** and uses the methodology set out in paragraph 6.39 - 6.44.

Predicted Operational Effects

6.88 Adverse operational effects have been scoped out because the Proposed Development has been designed to maximise biodiversity net gain and sensitively designed to avoid adverse

³⁵ Solar Energy UK (no date) Solar farms and songbirds: could skylarks benefit from ground mounted solar? Available at : <https://solarenergyuk.org/solar-farms-and-songbirds-could-sky-larks-benefit-from-ground-mounted-solar/>

³⁶ RSPB (2018) Bird use of solar farms - interim results. Available at: <https://community.rspb.org.uk/ourwork/b/science/posts/bird-use-of-solar-farms-interim-results>

effects associated with lighting, noise, road traffic accidents or habitat fragmentation and severance. Adverse operational effects are therefore not considered further in this section.

6.89 The predicted beneficial operational effects to ecological features would be **negligible** without the implementation of any measures to provide Biodiversity Net Gain. Further discussion is therefore provided under the residual operational effects section at paragraph 6.93.

6.90 As identified under the Assessment of Construction Effects, the Proposed Development will result in a residual effect in relation to skylark with a **significant adverse effect at the Local level (minor effect** in the context of the EIA Regulations) arising in relation to direct habitat loss. No additional impacts from direct habitat loss identified at the construction phase on skylark will arise from the Proposed Development during the operational phase and as such have not been considered further in this section. The operational phase will not result in any additional habitat loss, however loss of habitat, which will occur during the construction phase will persist during construction given the nature of the development.

Additional Operational Mitigation

6.91 As no adverse effects are predicted in relation to operational effects, no mitigation is required. This is with exception to skylark, whereby a residual minor effect is predicted for this species at the construction phase due to reductions in the availability of nesting habitat, which will continue throughout the operational phase. See paragraph **6.86** for discussion on mitigation for this species.

6.92 However, in order to maximise beneficial effects for ecological receptors, enhancements will be delivered as part of the LEMP. This is outlined under the construction phase of development (paragraphs **6.83** to **6.84**), and supports the delivery of Biodiversity Net Gain (see **Appendix 6.12: Biodiversity Net Gain Report**). It is expected to provide continued benefits through the operational phase. Further detail of this is presented below under the 'Residual Effects' section.

Residual Operational Effects

6.93 A summary of the residual effects is provided in **Table 6.7** below.

Table 6.7: Summary of Residual Effects

| Ecological Receptor | Predicted operational effect |
|--------------------------------|--|
| Non-statutory designated sites | <p>Habitat creation, management and monitoring implemented through the LEMP will result in an enhancement of habitats within the Site, which will contribute to strengthening connectivity and value of habitats associated with non-statutory designated sites. In particular, the Proposed Development will make provision for woodland, hedgerow and scattered tree planting, which will contribute to the National Forest Area and will provide specific benefit to the woodland habitat associated with Grove Wood LWS and Copperhill Spinney located within and adjacent to the Site. The above will provide a significant beneficial effect at the District level (moderate effect in the context of the EIA Regulations). This is significant in the context of EIA.</p> |
| Habitats | <p>Habitat creation, management and monitoring implemented through the LEMP will result in the enhancement of habitats within the Site, including provision of hedgerows, trees, woodland, lowland meadow and species-rich wildflower grassland. The provision of these enhancements will provide additional habitat opportunities for species within the Site, as well as strengthen and improve connectivity to habitats in the wider area. In particular, the Proposed Development will include enhancements that contribute to the objectives of the National Forest Area.</p> <p>The Proposed Development will ensure that Biodiversity Net Gain is achieved as demonstrated in Appendix 6.12: Biodiversity Net Gain and summarised above.</p> <p>The above will provide a significant beneficial effect at the Site to County level (moderate effect in the context of the EIA Regulations). This is significant in the context of EIA.</p> |

| Ecological Receptor | Predicted operational effect |
|---------------------|---|
| Bats | <p>Habitat creation, management and monitoring implemented through the LEMP will result in an enhancement of habitats within the Site. In particular, the Proposed Development will include for the provision of hedgerows, trees and woodland planting, which will provide additional opportunities for bats to forage, commute and roost, and lowland meadow and species-rich grassland, which will increase opportunities for bats to forage. The Proposed Development will also include the provision of bat boxes, which will provide additional opportunities for bats to roost. The above will provide a significant beneficial effect at the Local level (minor effect in the context of the EIA Regulations). This is not significant in the context of EIA.</p> |
| Badger | <p>Habitat creation, management and monitoring implemented through the LEMP will result in an enhancement of habitats within the Site. In particular, the Proposed Development will include for the provision of hedgerow and woodland, which will increase opportunities for badger to forage, commute and build setts, and relaxation of grassland management will increase opportunities for badger to forage and commute through the Site. The above will provide a significant beneficial effect at the Local level (minor effect in the context of the EIA Regulations). This is not significant in the context of EIA.</p> |
| Reptiles | <p>Habitat creation, management and monitoring implemented through the LEMP will result in an enhancement of habitats within the Site. In particular, the Proposed Development will include for the provision of lowland meadow and species-rich grassland habitat subject to a more relaxed management regime, and the provision of hedgerow, which will provide additional opportunities for reptile to forage, disperse and shelter. In addition, a reduction in grazing at the Site will reduce poaching and disturbance allowing hedgerows and woodland edges to become more favourable for reptiles. The above will provide a</p> |

| Ecological Receptor | Predicted operational effect |
|------------------------------------|--|
| | <p>significant beneficial effect at the Site level (minor effect in the context of the EIA Regulations). This is not significant in the context of EIA.</p> |
| Otter | <p>Habitat enhancements, management and monitoring implemented through the LEMP will result in an enhancement of habitats within the Site. In particular, the Proposed Development will include the enhancement of the unnamed watercourse and associated ditches through provision of aquatic planting and management of these habitats, which will provide additional opportunities for otter to forage, disperse and shelter. The above will provide a significant beneficial effect at the Site level (minor effect in the context of the EIA Regulations). This is not significant in the context of EIA.</p> |
| Breeding Birds (excluding Skylark) | <p>Habitat creation, management and monitoring implemented through the LEMP will result in a significant increase in suitable habitats for birds to nest. In particular, the Proposed Development will include the provision of hedgerow, trees and woodland planting, and creation of lowland meadow and species-rich grassland subject to more relaxed regime, which will provide additional opportunities for birds to nest and forage. The provision of enhancements as part of the Proposed Development design will provide overall benefit for the breeding bird assemblages as it will increase the extent and quality of habitats for many species, including for priority species, such as barn owl.</p> <p>The Proposed Development will not provide net benefit for breeding skylark on Site because this species relies on open pasture and arable land devoid of edge habitats and structures for nesting and as such, the provision of solar arrays will result in the Site no longer being suitable for this species to nest albeit the existing nesting success on Site is likely to be very low if successful at all due to existing farming practices. However, the provision of a significant BNG, and subsequent</p> |

| Ecological Receptor | Predicted operational effect |
|---------------------|---|
| | <p>management through the LEMP, is expected to provide better quality foraging resource for skylark in adjacent fields and the wider landscape^{35,36}.</p> <p>Therefore, the above will provide a significant beneficial effect at the Local level for all breeding bird assemblages (excluding skylark which are assessed under the construction phase above) (minor effect in the context of the EIA Regulations). This is not significant in the context of EIA.</p> <p>Residual minor adverse effects are predicted for Skylark at the construction phase due to reductions in the availability of nesting habitat, which will continue throughout the operational phase.</p> |
| Invertebrates | <p>Habitat creation, management and monitoring implemented through the LEMP will result in a significant increase to habitat diversity and structure, thus resulting in the increased diversity of invertebrates. In particular, the Proposed Development will include the provision of lowland meadow and species-rich grassland subject to more relaxed management, as well as hedgerow, tree and woodland planting, providing additional habitat for invertebrates to forage and shelter. The above will provide a significant beneficial effect at the Site level (minor effect in the context of the EIA Regulations). This is not significant in the context of EIA.</p> |

6.94 A Biodiversity Net Gain assessment has been undertaken and is provided in **Appendix 6.12**. The assessment took a highly precautionary approach and demonstrated that the Proposed Development will deliver a net gain for biodiversity through the delivery of habitat and species enhancements and creation measures. A summary of the findings is presented below:

- A net gain of 565.51 habitat units which is a 125.07% increase from the baseline units.
- A net gain of 37.92 hedgerow units which is an 20.02% increase from the baseline units.
- A net gain of 4.18 river units which is a 19.82% increase from baseline units.

6.95 It is expected that the Proposed Development will have significant ecological benefits at the Local level for non-statutory designated sites, habitats, bats, birds, badger, reptiles, breeding birds (excluding skylarks) and invertebrates, due to the delivery of Biodiversity Net Gain and habitat created and managed as part of the Proposed Development.

6.96 The Proposed Development will include the creation of hedgerows, trees, woodland and grassland, and the enhancement of grassland to lowland meadow and species-rich grassland and hedgerow.

6.97 The habitat enhancement and creation measures will reach maturity in the operational phase. This will be secured by the DCO and through the delivery of the LEMP presented at **Appendix 5.6**.

Decommissioning

6.98 Effects during decommissioning are assumed to be no greater than during construction.

6.99 The delivery of BNG for Nationally Significant Infrastructure Projects is expected to be mandatory for DCO applications accepted from November 2025 and as such the Proposed Development is not legally required to secure BNG. DEFRA is encouraging projects to adopt BNG earlier on a voluntary basis and it is considered best practice to do so. The Proposed Development will deliver BNG and as such the Applicant intends to manage created and enhanced habitat for a minimum of 30 years to achieve target condition. During decommissioning, the majority of the developed footprint may revert to previous land uses. Any modifications to remaining areas created and enhanced for BNG will need to be cognizant of the habitats and species that are present within those habitats and must be undertaken in line with any statutory legislative requirements afforded to protected species and habitats at that time. Details of this will be provided as part of the final Decommissioning Strategy.

Assessment of Cumulative Effects

Predicted Cumulative Effects

6.100 This section details the findings of the cumulative impacts assessment with regards to ecology which might not be significant alone but become significant when considered in-

combination with effects from other developments proposed. This EclA has assessed a 'worst-case' scenario incorporating maximum land take to be affected by proposed schemes to ensure in-combination effects have been considered.

6.101 The list of site/applications assessed as part of the cumulative impact assessment are provided in **Chapter 2: The Environmental Impact Assessment and Methodology**.

6.102 It is considered highly unlikely that the list of sites/applications requiring consideration in relation to cumulative effects would be likely to result in significant cumulative ecological effects with the Proposed Development given the nature of the Proposed Development and the efficacy of the avoidance and mitigation measures detailed in this chapter. It should be noted that avoidance and mitigation measures provided as part of the Proposed Development will ensure that impacts to all ecological receptors will be avoided and/or mitigated and therefore, there is no mechanism for cumulative impacts to occur. This is with the exception of skylark where it is recognised that a residual impact will occur in relation to direct habitat loss. Within Derbyshire, Skylark are a common and widespread breeding species and the dominant land use in the area is farmland, including arable. Of the cumulative schemes assessed, none are predicted to have an impact on skylark: therefore, it is concluded that cumulative impacts would not be significant. Further to this, the Proposed Development will deliver Biodiversity Net Gain, which will provide significant beneficial impacts for a range of ecological receptors, including non-statutory designated sites, habitats, bats, badger, reptiles, breeding birds and invertebrates.

6.103 Further to this, each of these cumulative schemes will in turn be required to deliver appropriate avoidance and mitigation measures and to achieve Biodiversity Net Gain. Therefore, it has been concluded that no cumulative impacts will occur as a result of the Proposed Development in combination with other developments in the wider area.

Further Survey Requirements and Monitoring

6.104 Specific updated surveys will be detailed in the CEMP and secured by the DCO, and will be undertaken within suitable timeframes prior to commencement of construction (subject to the habitat features present), or within a suitable timeframe to support NE species licensing, including the following:

- Habitat survey to determine whether conditions have changed as a result of changes in land management (and implications for protected species surveys).
- Bat Roost Assessment of trees
- Badger survey
- Otter survey
- Nesting bird survey should vegetation removal be required within the bird nesting season
- Other protected species surveys if deemed necessary following the above habitat survey.

6.105 Ecological monitoring requirements are associated with the level of potential impacts and the success of mitigation delivery. Monitoring will be undertaken in accordance with best practice guidance and techniques for specific ecological receptors. The aim of monitoring will be to evaluate the effectiveness of habitat creation proposals, in terms of the extent, distribution, and quality of habitats. Further survey and monitoring will include:

- Assessing habitat creation and management including areas of species-rich grassland, woodlands, scrub and hedgerow (years 1, 2 and 5 and if required thereafter at 5 year intervals during the 40 year lifespan of the Proposed Development).
- Use of bat roost features including boxes (years 1, 2 and 5).

Summary of Effects

6.106 Table 6. below summarises the predicted effects of the Proposed Development on Ecology. All the construction impacts were assessed as being not significant. Although a residual adverse effect, at the local level, was predicted for Skylark during construction this is not considered to be significant under the EIA Regulation definitions.

6.107 Significant beneficial effects were predicted at the operational phase in relation to; non-statutory designated sites, habitats, bats, badger, reptiles, otter, breeding birds (excluding skylark) and invertebrates.

Table 6.8: Summary of Effects

| Predicted Effect | Impact Type | Embedded Mitigation | Significance | Additional Mitigation | Significance of Residual Effect |
|---|--|--|--|-----------------------|--|
| Construction | | | | | |
| Statutory Designated Site – River Mease SAC | Contamination | <p>Increased provision of attenuation measures to reduce surface run-off and nutrient enrichment. This will provide water quality benefits to minor watercourses and ditches in the locality.</p> <p>Avoidance and mitigation measures as detailed in HRA.</p> <p>Best practice construction methods detailed in CEMP.</p> | <p>Not Significant at any geographic level</p> <p>(negligible in the context of the EIA Regulations)</p> | N/A | <p>Not significant at any geographic level</p> <p>(negligible in the context of the EIA Regulations)</p> |
| Non-statutory Designated Sites | <p>Direct Habitat Loss</p> <p>Physical Disturbance</p> | <p>Proposed Development is located 30m from ancient woodland that that the LWS is designated for.</p> | <p>Not Significant at any geographic level</p> <p>(negligible in the context of the EIA Regulations)</p> | N/A | <p>Not Significant at any geographic level</p> <p>(negligible in the context of the EIA Regulations)</p> |

| Predicted Effect | Impact Type | Embedded Mitigation | Significance | Additional Mitigation | Significance of Residual Effect |
|--------------------------------|--|---|--|--|--|
| Non-statutory Designated Sites | Contamination | <p>Best practice construction methods detailed in CEMP.</p> <p>Tree protection fencing in line with BS5837 and protection buffer of at least 15m from ancient woodland and at least 15 times larger than the diameter of any veteran and ancient trees.</p> | <p>Not significant at any geographic level (negligible in the context of the EIA Regulations)</p> | N/A | <p>Not significant at any geographic level (negligible in the context of the EIA Regulations)</p> |
| Habitats | Direct Habitat Loss Physical Disturbance Contamination | <p>Proposed Development will be focused in areas with habitats of Local value or below, such as improved grassland and arable fields, where impacts can be successfully mitigated for.</p> <p>Retention of veteran trees and ancient woodland habitat.</p> <p>Best practice construction methods detailed in CEMP.</p> <p>Tree protection fencing in line with BS5837 and protection buffer of at least 15m from ancient woodland and at least 15 times larger than the</p> | <p>Direct habitat loss - Significant adverse at the Site, Local and County level (minor, minor, and moderate effect in the context of the EIA Regulations)</p> <p>Physical disturbance</p> | Creation of new habitats including species-rich grassland, hedgerow and woodland planting. | <p>Not significant at any geographic level (negligible in the context of the EIA Regulations)</p> |

| Predicted Effect | Impact Type | Embedded Mitigation | Significance | Additional Mitigation | Significance of Residual Effect |
|---|---|---|--|--|---|
| | | diameter of any veteran and ancient trees. | and contamination - Not significant (negligible in the context of the EIA Regulations) | | |
| Spread of /Introduction of Invasive Species | Physical Disturbance | Pre-construction surveys Marking and protective fencing of Japanese knotweed prior to works Toolbox talks prior to works Best practice working methods with regards to invasive species to be specified in CEMP. | Not significant at any geographic level (negligible in the context of the EIA Regulations) | Treatment of Japanese knotweed in parallel with construction Control of Japanese knotweed included in site LEMP | Significant beneficial at the Site level (minor effect and not significant in the context of the EIA Regulations) |
| Bats | Direct Habitat Loss Mortality Noise and Vibration Disturbance | Retention of trees identified as having moderate and high bat roost suitability. Best practice construction methods detailed in CEMP. | Direct habitat loss - Significant adverse at the Site level (minor effect in the context | Installation of bat boxes to replace loss of features with low bat roost suitability. | Not significant at any geographic level (negligible in the context |

| Predicted Effect | Impact Type | Embedded Mitigation | Significance | Additional Mitigation | Significance of Residual Effect |
|--|----------------------------------|--|--|---|---|
| | | <p>Soft-felling measures of trees identified as having low bat roost suitability.</p> <p>Sensitive timing of works – soft felling in spring/autumn to avoid breeding season.</p> | <p>of the EIA Regulations)</p> <p>Mortality and noise, vibration and lighting - Not significant (negligible in the context of the EIA Regulations)</p> | | <p>of the EIA Regulations)</p> |
| Reptiles (Drakelow Power Station only) | Direct Habitat Loss Mortality | Best practice construction methods detailed in CEMP. | <p>Direct habitat loss/mortality – Not significant at any geographic level.</p> <p>(negligible in the context of the EIA Regulations)</p> | Creation of new habitats, including species-rich grassland, hedgerow, scrub and woodland. | <p>Not significant at any geographic level (negligible in the context of the EIA Regulations)</p> |
| Badger | Direct Habitat Loss | Pre-construction survey for badger. | Direct habitat loss, physical disturbance | Creation of new habitats, including species-rich | Not significant at any |

| Predicted Effect | Impact Type | Embedded Mitigation | Significance | Additional Mitigation | Significance of Residual Effect |
|------------------|---|---|---|--|--|
| | Physical Disturbance Mortality Noise and Vibration Disturbance Habitat Fragmentation | Best practice construction methods detailed in CEMP. Traffic restrictions of 5mph near to badger setts. Sensitive timing of works. | and habitat fragmentation - Significant adverse at the Local level (minor effect in the context of the EIA Regulations) Mortality and noise and vibration - Not significant (negligible in the context of the EIA Regulations) | grassland, hedgerow, scrub and woodland. Installation of mammal gaps. | geographic level (negligible in the context of the EIA Regulations) |
| Otter | Direct Habitat Loss Mortality Noise and Vibration Disturbance | Pre-construction survey for otter. All otter holts will be demarcated prior to works. No construction works will be undertaken within 30m of an otter holt. | Not Significant at any geographic level (negligible in the context of | Enhancement of watercourses and associated ditches. | Not significant at any geographic level (negligible in the context |

| Predicted Effect | Impact Type | Embedded Mitigation | Significance | Additional Mitigation | Significance of Residual Effect |
|------------------|---|--|--|---|---|
| | Contamination | Any vehicle traffic within close proximity of an otter holt will be subject to a 5mph speed limit. Best practice construction methods detailed in CEMP. | the EIA Regulations) | | of the EIA Regulations) |
| Breeding Birds | Direct Habitat Loss Mortality Noise and Vibration Disturbance | Best practice construction methods detailed in CEMP. Sensitive timing of works | Direct habitat loss - Significant adverse at the Site level (minor effect in the context of the EIA Regulations) Mortality and noise and vibration disturbance - Not Significant (negligible in the context of the EIA Regulations) | Creation of new habitats, including hedgerow, scrub and woodland. | Not significant at any geographic level (negligible in the context of the EIA Regulations) |

| Predicted Effect | Impact Type | Embedded Mitigation | Significance | Additional Mitigation | Significance of Residual Effect |
|--------------------------|---|---|---|-----------------------|---|
| Breeding Birds – Skylark | Direct Habitat Loss Mortality Noise and Vibration Disturbance | Best practice construction methods detailed in CEMP. Sensitive timing of works | Direct habitat loss - Significant adverse at the Local level (minor effect in the context of the EIA Regulations) Mortality and noise and vibration disturbance - Not significant (negligible in the context of the EIA Regulations) | N/A | Significant adverse at the Local level (Minor effect and not significant in the context of the EIA Regulations) |
| Operation | | | | | |

| Predicted Effect | Impact Type | Embedded Mitigation | Significance | Additional Mitigation | Significance of Residual Effect |
|--------------------------------|--|---|--------------|---|---|
| Non-statutory Designated Sites | No impacts are predicted for this ecological receptor. | The Proposed Development will be focused in areas local value or below, such as improved grassland and arable fields. | No impacts | Habitat creation, management and monitoring implemented through the LEMP will result in an enhancement of habitats within the Site, which will contribute to strengthening connectivity and value of habitats associated with non-statutory designated. | Significant beneficial at County Level (moderate effect and significant in the context of the EIA Regulations) |
| Habitats | No impacts are predicted for this ecological receptor. | <p>The Proposed Development will be focused in areas of local value or below, such as improved grassland and arable fields, where any impacts can be successfully avoided and mitigated for.</p> <p>Proposed access tracks across the unnamed watercourse will be culverted to ensure impacts from habitat loss are avoided and mitigated for.</p> <p>Retention of species-rich hedgerows. A 5m buffer will be implemented between the Proposed</p> | No impacts | Habitat creation, management and monitoring implemented through the LEMP will result in an enhancement of habitats within the Site. | Significant beneficial (moderate effect and significant in the context of the EIA Regulations) at the County level. |

| Predicted Effect | Impact Type | Embedded Mitigation | Significance | Additional Mitigation | Significance of Residual Effect |
|------------------|--|---|--------------|---|--|
| | | Development infrastructure and the retained hedgerows. | | | |
| Bats | No impacts are predicted for this ecological receptor. | N/A | No impacts | Habitat creation, management and monitoring implemented through the LEMP will result in an enhancement of habitats within the Site. | Significant beneficial at Local level (minor effect and not significant in the context of the EIA Regulations) |
| Badger | No impacts are predicted for this ecological receptor. | Traffic restrictions of 5mph near to badger setts. Proposed fencing around the solar arrays will include mammal gaps at the base of the fence at strategic locations to allow dispersal of badger. | No impacts | Creation of habitat, including species-rich grassland, hedgerow scrub and woodland planting. Habitat management and monitoring implemented through the LEMP. | Significant beneficial at Local level (minor effect and not significant in the context of the EIA Regulations) |
| Reptiles | No impacts are predicted for this ecological receptor. | N/A | No impacts | Habitat creation, management and monitoring implemented through the LEMP will result in a significant increase in suitable habitats present and further | Significant beneficial at Site level (minor effect and not |

| Predicted Effect | Impact Type | Embedded Mitigation | Significance | Additional Mitigation | Significance of Residual Effect |
|------------------------------------|--|---------------------|----------------------------------|---|--|
| | | | | enhance retained habitats within the Site. | significant in the context of the EIA Regulations) |
| Otter | No impacts are predicted for this ecological receptor. | N/A | No impacts | Habitat creation, management and monitoring implemented through the LEMP will result in a significant increase suitable habitat for otter to forage, disperse and shelter. | Significant beneficial at Site level (minor effect and not significant in the context of the EIA Regulations) |
| Breeding birds (excluding skylark) | No impacts are predicted for this ecological receptor. | N/A | No impacts | Habitat creation, management and monitoring implemented through the LEMP will result in a significant increase in suitable habitats for birds to nest and will improve structural diversity and foraging resources. | Significant beneficial at Local level (minor effect and not significant in the context of the EIA Regulations) |
| Breeding Birds - Skylark | Loss of nesting habitat. | N/A | Significant adverse at the Local | Habitat creation, management and monitoring implemented through the LEMP will benefit | Significant adverse at the Local |

| Predicted Effect | Impact Type | Embedded Mitigation | Significance | Additional Mitigation | Significance of Residual Effect |
|------------------|--|---------------------|---|---|---|
| | | | level (minor effect in the context of the EIA Regulations) as assessed at the construction phase, continuing throughout the operational phase | skylark nesting offsite by providing enhanced foraging and sheltering opportunities. | level (minor effect and not significant in the context of the EIA Regulations) as assessed at the construction phase, continuing throughout the operational phase |
| Invertebrates | No impacts are predicted for this ecological receptor. | N/A | No impacts | Habitat creation, management and monitoring implemented through the LEMP will result in a significant increase to habitat diversity and structure, thus resulting in the increased diversity of invertebrates | Significant beneficial at Site level (minor effect and not significant in the context of the EIA Regulations) |