POWER FOR GOOD

Steeple Renewables Project

Chapter 7 - Ecology and Biodiversity

Environmental Statement – Volume 1

April 2026

Document Reference: EN010163/EX/6.2.7

Revision: 3 (Clean)

The Infrastructure Planning (Examination Procedure) Rules 2010

Rule 8(1)(b)

Chapter 7 - Ecology and Biodiversity

Document Properties		
Prepared By	The Steeple Renewables Project Consultant Team	
Version History		
Version	**Date**	**Version Status**
Application Version	April 2025	Rev 1
Amendments following consultation comments	January 2025	Rev 2
Examination (Deadline 6)	April 2026	Rev 3

Table of Contents:

Chapter 7 - Ecology and Biodiversity 2
7. Ecology and Biodiversity 4
7.1 Introduction 4
7.2 Legislation and Planning Policy 5
7.3 Assessment Methodology 6
7.4 Assessment Assumptions and Limitations 9
7.5 Stakeholder Engagement 9
7.6 Baseline Conditions 9
7.7 Embedded Mitigation 53
7.8 Assessment of Likely Significant Effects 55
7.9 Summary of Impact Assessment 103
7.10 Mitigation and Enhancement 105
7.11 Cumulative and In-combination Effects 105
7.12 Summary 114
Appendices 119

List of Tables:

Table 7.1 Summary of surveys carried out 10
Table 7. 2 - Summary of Local Wildlife Sites at the Site and within 100 m 19
Table 7.3 - Summary of ecological evaluation 52
Table 7. 4 - Summary of impact assessment 103
Table 7. 5 – Shortlist of Sites Considered for Cumulative Assessment 107
Appendix 1: Table 7. 6 - Buffer zones and stand-off distances from ecological features 120
Appendix 2: Table 7. 7 - Zone of Influence Table 123
Appendix 3: Table 7. 8 - Summary of written consultation responses from the Scoping Opinion with reference to Ecology 125
Appendix 4: Table 7. 9 - Summary of written consultation responses from the Preliminary Environmental Information Report with reference to Ecology 145

7. Ecology and Biodiversity

7.1 Introduction

7.1.1 This Environmental Statement (ES) chapter summarises the baseline biodiversity interest of the Site and biodiversity features within the Proposed Development's Zone of Influence (ZoI) based on information available at the time of writing. The baseline is evaluated in accordance with industry guidance. It also provides an assessment of the potential effects of the Proposed Development during construction, operation and decommissioning in relation to Ecology and Biodiversity. It assesses the likely significant effects on ecology arising from the Proposed Development and considers measures to minimise these to determine the likely significance of the residual biodiversity effects of the Proposed Development

7.1.2 Consultation responses and scoping opinions, based on consultation and engagement with statutory and non-statutory bodies have been considered during the preparation of this chapter. Consideration is also given to other known projects and activities and specifically to the potential for interaction between the Proposed Development and other projects, potentially resulting in cumulative effects.

7.1.3 This chapter is supported by five appendices (embedded into this chapter) :

- **Appendix 1: Recommended buffer zones and stand-off distances from ecological features.**
- **Appendix 2: Zone of Influence Table**
- **Appendix 3: Summary of written consultation responses from the Scoping Opinion with reference to Ecology.**
- **Appendix 4: Summary of written consultation responses from the Preliminary Environmental Information Report with reference to Ecology.**
- **Appendix 5: Summary of Ecology consultation meetings.**

7.1.4 The chapter is also supported by several separate Technical Appendices as follows:

- **Appendix 7.1 – Legislation and policy [EN010163/APP/6.3.7].**
- **Appendix 7.2 - Designated sites [EN010163/APP/6.3.7].**
- **Appendix 7.3 - Habitat report [EN010163/APP/6.3.7].**
- **Appendix 7.4 - Breeding bird report [EN010163/APP/6.3.7].**
- **Appendix 7.5 - Barn owl report (confidential) [EN010163/APP/6.3.7].**

- **Appendix 7.6 - Wintering bird report [EN010163/APP/6.3.7].**
- **Appendix 7.7 - Bat report [EN010163/APP/6.3.7].**
- **Appendix 7.8 - Badger report (confidential) [EN010163/APP/6.3.7].**
- **Appendix 7.9 - Otter and water vole report [EN010163/APP/6.3.7].**
- **Appendix 7.10 - Great crested newt report [EN010163/APP/6.3.7].**
- **Appendix 7.11 - Aquatic invertebrates report [EN010163/APP/6.3.7].**
- **Appendix 7.12 - Biodiversity Net Gain report [EN010163/APP/6.3.7].**
- **Appendix 7.13 - Skylark mitigation report [EN010163/APP/6.3.7].**
- **Appendix 7.14 – Outline Landscape and Ecological Management Plan [EN010163/APP/6.3.7].**

Terms used in this chapter of the ES

7.1.5 For ease of reference the following will be terms referred to within the Ecology Chapter to define areas within the Site (refer to **Figure 2.1 – Indicative Site Layout [EN010163/APP/6.4.2]**):

- Proposed Solar Areas: all areas within the Site which have been identified within **Figure 2.1 -Indicative Site Layout [EN010163/APP/6.4.2]** for locating the solar panels, battery storage, substations, access routes and other associated infrastructure.
- Biodiversity Mitigation Areas (Eastern and Western): areas of the Site that would not be used for development, and identified for use as biodiversity mitigation and enhancement.
- The Site: collectively including the Proposed Solar Areas and Biodiversity Mitigation Areas.

7.2 Legislation and Planning Policy

7.2.1 The main legislation and policy relating to habitats, species and protected biodiversity sites is set out in **Appendix 7.1 – Legislation and Policy [EN010163/APP/6.3.7].**

Legislation

- Environment Act 2021
- The Conservation of Habitats and Species Regulations 2017
- Wildlife and Countryside Act 1981
- Protection of Badgers Act 1992

- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (SI 2017/572).
- Protection of Badgers Act 1992
- Hedgerow Regulations 1997
- The Eels (England and Wales) Regulations 2009
- The Salmon and Freshwater Fisheries Act 1975
- The Animal Welfare Act 2006
- The Invasive Alien Species Order 2009

Policy

- Natural Environment and Rural Communities (NERC) Act 2006 - Habitats and species of principal importance (England)
- Bassetlaw Local Plan 2020 – 2038
    - POLICY ST37: Green and Blue Infrastructure
    - POLICY ST38: Biodiversity and Geodiversity
    - POLICY ST39: Trees, woodlands and hedgerows

7.3 Assessment Methodology

Methods of Evaluation and Impact Assessment

7.3.1 This chapter follows the general approach set out in the Ecological Impact Assessment (EcIA) guidance published by the Chartered Institute for Ecology and Environmental Management (CIEEM, 2024)[1]. The approach to evaluation of the importance of biodiversity features and the assessment of the significance of impacts and effects on those features, is summarised below. Although CIEEM (2024) is recognised as the industry standard for ecological assessment, the guidance is not prescriptive; rather, it aims to "*provide guidance to practitioners for refining their own methodologies*".

Important Ecological Features

7.3.2 One of the first steps in EcIA is determination of which ecological features (habitats, species, ecosystems and their functions/processes) are important. Important

[1] CIEEM (2022) Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater, Coastal and Marine [online] available at: https://cieem.net/wp-content/uploads/2018/08/EcIA-Guidelines-v1.3-Sept-2024.pdf [last accessed 7th November 2024].

ecological features should then be subject to detailed assessment if they are likely to be affected by a development. It is not necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened and resilient to effects of a development, such that there is no risk to their viability.

7.3.3 Ecological features can be important for a variety of reasons. Importance may relate, for example, to the quality or extent of designated sites or habitats, to habitat/species rarity, to the extent to which they are threatened throughout their range, or to their rate of decline.

Evaluation: Determining Importance

7.3.4 The importance of an ecological feature is considered within a defined geographical context. The following frame of reference has been used in this case:

- International / European
- National (UK)
- Regional: East Midlands
- County: Nottinghamshire
- Local: i.e., broadly the area of land between Saundby (to the north) and Treswell / Cottam to the south, Marton (in Lincolnshire) to the east and Clarborough to the west (i.e. the local setting of the Site). In the absence of prescriptive guidance on defining 'Local' distances, this accounts for a radius around the Site of up to 3 km; this approach has been agreed with Nottinghamshire County Council and Bassetlaw District Council ecologists (refer to **Appendix 5** of this ES chapter).
- The Site (and its immediate surrounds.
- Below Site level: negligible importance.

Characterising and Quantifying Effects and Assessing their Significance

7.3.5 The CIEEM guidelines suggest that ecological effects or impacts should be characterised in terms of ecosystem structure and function and reference should be made *where relevant* [author's emphasis] to: beneficial, adverse or 'no significant' (or 'neutral') effects; extent; magnitude; duration; reversibility; timing and frequency; and cumulative effects. The guidelines provide a list of *"aspects of ecological structure and function to consider when predicting impacts and effects".*

The terms 'impact' and 'effect' are used in accordance with the following definitions (as provided by the guidelines):

> Impact*: "Actions resulting in changes to an ecological feature. For example, the construction activities of a development removing a hedgerow".*
>
> Effect*: "Outcome to an ecological feature from an impact. For example, the effects on a dormouse population from loss of a hedgerow*".

7.3.6 Following the characterisation of effects, an assessment of the ecological significance of those effects is made. The guidelines promote a transparent approach in which a beneficial or adverse effect is determined to be significant or not, in ecological terms, in relation to the integrity of the defined site or ecosystem(s) and/or the conservation status of habitats or species within a given geographical area, which relates to the level at which it has been valued. The decision about whether an effect is significant or not, is independent of the value of the ecological feature; the value of any feature that will be significantly affected is then used to determine the implications, in terms of legislation and / or policy.

7.3.7 Significance is a concept related to the weight that should be attached to effects when decisions are made. For this assessment, a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features'. A significant effect is simply an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project. The CIEEM guidance states:

> *"A significant effect does not necessarily equate to an effect so severe that consent for the project should be refused planning permission. For example, many projects with significant adverse ecological effects can be lawfully permitted following EIA procedures".*

7.3.8 In this Chapter, all of the effects are described to be significant at the geographic level set out (e.g., at the Site level; at the Local level at the County level; at the National level; at the International level); or else they are negligible or neutral and not significant).

7.3.9 Because of the number of receptors that are assessed, the effects, mitigation and residual effects are grouped for each assessed receptor for ease of reading, rather than splitting this information out.

7.4 Assessment Assumptions and Limitations

7.4.1 This section summarises any assumptions and potential limitations relating to any difficulties encountered in compiling the baseline information, and assumptions made about data sources, baseline conditions or the assessment of effects. They are considered in greater detail in the relevant Appendices (**Appendix 7.2 to 7.13 [EN010163/APP/6.3.7]**) and summarised here.

7.4.2 No significant baseline additional data gathering or methodological limitations have been identified. This is expanded upon in each of the **Appendices 7.2 to 7.13 [EN010163/APP/6.3.7]**.

7.5 Stakeholder Engagement

7.5.1 A Scoping Report was submitted to the Planning Inspectorate (PINS) on 19th April 2024. Responses were received from PINS and other stakeholders, in June and August 2024.

7.5.2 Further stakeholder consultation has been initiated with the following organisations:

- Natural England;
- Nottinghamshire County Council Ecology Team;
- Bassetlaw District Council ecologist; and,
- Nottinghamshire Wildlife Trust.

7.5.3 A summary of the outcome of stakeholder engagement undertake to date is presented in **Appendices 3 and 4**, at the end of this chapter.

7.6 Baseline Conditions

7.6.1 Survey methods are summarised in **Table 7.1** along with information about the area surveyed. Desk study methods and field survey methods are set in more detail in the relevant technical appendices **(Appendices 7.2 to 7.11 [EN010163/APP/6.3.7])**.

Study Area and Surveys Undertaken

7.6.2 The extent of the ecological study area has been informed by published guidance, professional judgement, and the scoping and consultation responses from PINS and other stakeholders.

Table 7.1 Summary of surveys carried out

Survey	Survey Area	Methodology	Dates	Observations
Terrestrial habitats	The Site	UK Habitat Classification Definitions[2] . Habitat types and conditions recorded to aid descriptions and enable completion of the Statutory Biodiversity Metric. Hedgerow Survey Handbook (Defra, 2007) to allow assessment of importance against the wildlife and landscape criteria as specified in The Hedgerows Regulations (1997). A search for invasive non-native species was also undertaken.	January to August 2024	Survey work is complete. All hedgerows that the arboricultural surveys identified as having five species or more along their entire length were surveyed by an ecologist to determine if they were species-rich or 'important', as detailed below. This is because the arboricultural survey produced counts of woody species for the entire length of the hedgerow, whereas species richness, in UKhab classifications, is determined by the average number of woody species per 30m sample section only. On this basis, survey of 51 hedgerows, covering 15.5 km of the total 69 km resource of hedgerow within the Site was completed.
Aquatic habitats: initial ditch and watercourse survey. Pond surveys.	The Site	UK Habitat Classification Definitions. A search for invasive non-native species was also undertaken.	April to June 2024	Survey work is complete.
Aquatic habitats: Modular River Physical (MoRPh) survey	The Site	Condition assessments in line with the Statutory Biodiversity Metric User Guide[3] and its technical annex. Watercourses that require 'river condition assessment' have been subject to Modular River Physical	September / October 2024	Survey work is complete. The MoRPh survey has been undertaken on qualifying watercourse features.

[2] UKHab Ltd (2023). 'UK Habitat Classification Version 2.0'. [online] available at https://www.ukhab.org [last accessed 12 March 2025].
[3] Defra (2024); 'Statutory Biodiversity Metric User Guide'. Defra.

Survey	Survey Area	Methodology	Dates	Observations
		(MoRPh) survey in accordance with Modular River Survey guidance[4] .		
Aquatic habitats: lake condition assessment survey	The Site	UK Habitat Classification Definitions. A search for invasive non-native species was also be undertaken.	September / October 2024	Survey work is complete. Work undertaken on Littleborough Lagoon (located in the Eastern Biodiversity Mitigation Area). No other Lake features present at the Site that require survey.
Breeding bird survey	The Site and immediate surrounding areas	Methods with reference to Gilbert *et al*[5] and the Bird Survey & Assessment Steering Group[6] A total of six survey visits were completed in 2023 and 2024. Five morning surveys completed, one per month between March and July and one dusk / crepuscular survey in June. . Field data were analysed to create maps of breeding bird activity and to estimate the numbers of breeding pairs within the Site. This took account of recorded behaviour in the case of each bird registration recorded. More information about the approach to territory analysis is given in Appendix 7.4. Birds observed beyond the boundary of the Site or flying over the Site showing no apparent association with it were also noted to contextualise the information	March to July 2023 and March to July 2024	Survey work is complete. Full access to the Site was not available during the 2023 breeding bird surveys, and this work was limited to surveying from public rights of way only. There is an extensive network of public rights of way across the Site which allowed much of the Site to be accessed. The 2024 data, which was gathered across the whole of the Site with no significant restrictions on access, is used as the principal field survey baseline. The 2023 survey was subject to access restrictions and is considered to be a partial dataset that nonetheless provides useful context in some cases, for example for skylark *Alauda arvensis*.

[4] Gurnell A. et al. (2022); 'A Guide to Assessing River Condition: Part of the Rivers and Streams Component of the Biodiversity Net Gain Metric. BM3.1 version, updated November 2022'. Modular River Survey
[5] Gilbert, G., Gibbons, D.W. & Evans, J. (1998). 'Bird Monitoring Methods'. RSPB.
[6] Bird Survey & Assessment Steering Group. (2023). 'Bird Survey Guidelines for assessing ecological impacts, v.1.1.1'. [online] Available at https://birdsurveyguidelines.org [last accessed 20 November 2024].

Survey	Survey Area	Methodology	Dates	Observations
		gained but those observations do not form part of the reported territory numbers.		
Wintering bird survey	The Site and immediate surrounding areas	One visit per month, and with reference to methods suggested by the Bird Survey & Assessment Steering Group.	October 2023 to March 2024	Survey work is complete. Full access was not possible to two areas of the Site and these were surveyed from public rights of way. During the surveys, these fields and boundaries were observed where possible using binoculars from the public rights of way which is considered to have reduced the potential significance of the limitation. These areas are largely unaffected by the Proposed Development and are identified for biodiversity enhancements.
Ground level assessments of on-site trees and buildings for bat and barn owl	Proposed Solar Areas	Ground level inspection of all trees and buildings for their suitability for roosting bats and roosting / nesting barn owl completed with reference to industry bat survey[7] and barn owl survey[8] guidance.	January to April 2024	Survey work is complete. Ground level inspection of all trees and buildings within the Proposed Solar Areas (i.e., areas impacted by the solar and associated infrastructure). Trees / buildings within the Biodiversity Mitigation Areas (Eastern and Western) were not surveyed as they are to be retained and unaffected. An investigation of potential nesting / roosting features has been undertaken. This work has been undertaken to inform the design of the Proposed Development, for example by seeking to retain and appropriately buffer trees with bat and barn owl suitability. This designs out the likelihood of significant effects and further, more detailed survey is not required.
Ground level assessments of off-site trees and buildings for bat and barn owl	Off-site up to 50 m from the boundary of the Proposed Solar Areas (where considered to be	Ground level inspection of all trees and buildings for their suitability for roosting bats and roosting / nesting barn owl completed with reference to industry bat survey and barn owl survey guidance.	January 2024 to February 2025	The need for surveys is scoped out for the Biodiversity Mitigation Areas (Eastern and Western) as there will not be any negative effects on potential bat / barn owl roosts / nests.

[7] Collins, J. (ed.) (2023); 'Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition)'. The Bat Conservation Trust, London
[8] Shawyer C (2012); 'Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment'. Wildlife Conservation Partnership.

Survey	Survey Area	Methodology	Dates	Observations
	appropriate and access can be secured).			
Bat activity survey	Proposed Solar Areas	Bat activity survey work undertaken with reference to industry bat survey guidance and based on a 'moderate' habitat suitability. It is comprised of two survey methods: 1) Night-time bat walkover survey. One survey to be completed in spring (April / May), summer (June – August) and autumn (September / October) 2024. Currently proposed that five routes will be sampled across representative habitats. 2) Remote bat detector survey. Monthly surveys between April and October, deploying remote bat detectors for a period of at least five nights per month.	April to October 2024	The need for surveys is scoped out for the Biodiversity Mitigation Areas (Eastern and Western) as there will not be any negative effects on bat foraging / commuting habitats.
Badger survey	The Site and off-site up to 50 m from the boundary of the Proposed Solar Areas (where considered to be appropriate and where access could be secured).	Completed with reference to industry standard survey methodology[9][10].	January 2024 to February 2025	Survey work is complete. 50 m buffer not accessible in all locations but this is not considered a significant limitation. Incidental field signs of badger identified during field work for other ecology features were also collected and reviewed as part of determining the badger baseline.

[9] Harris S, Cresswell P & Jefferies D (1989); 'Surveying Badgers –Occasional Publication No 9'. The Mammal Society.
[10] Neal, E., and C. Cheeseman (1996); 'Badgers'. T & AD Poyser Natural History Ltd, London.

Survey	Survey Area	Methodology	Dates	Observations
Water vole survey	Proposed Solar Areas and off-site up to 10 m from the boundary of the Proposed Solar Areas (where considered to be appropriate and access can be secured).	Completed with reference to industry standard survey methodology[11][12]. Two separate survey visits were undertaken, one early season and one later season and timed least two months apart.	April and September 2024	Survey work is complete. Targeted surveys for this species have not been undertaken in the Biodiversity Mitigation Areas (Eastern and Western) as there will not be any negative effects on potential water vole habitats. However, the potential presence of water vole was considered during habitat surveys of suitable habitat (i.e., ditches, drains and ponds) throughout the Site including the Biodiversity Mitigation Areas. Field signs were recorded and mapped when encountered. Thus, water vole presence in the Eastern and Western Biodiversity Mitigation Areas have been assessed.
Otter survey	Proposed Solar Areas and up to 100 m the boundary of the Proposed Solar Areas (where considered to be appropriate and access can be secured).	Suitable waterbodies and terrestrial habitat were surveyed with reference to industry standard survey methodology[13][14].	April and September 2024	No further survey proposed to establish baseline. Targeted surveys for this species have not been undertaken in the Biodiversity Mitigation Areas (Eastern and Western). This is because no development is to take place in these areas and as such there will not be any negative effects on potential otter habitats. The potential presence of otter was nonetheless considered during habitat surveys of habitat suitable for otters (i.e., ditches, drains, ponds, scrub and woodland) throughout the Site including the Biodiversity Mitigation Areas. Field signs were recorded and mapped when encountered. Thus, otter presence in the Eastern and Western Biodiversity Mitigation Areas has been assessed.
Great crested newt *Triturus cristatus* survey	The Site and up to 250 m off-site (where considered to be	Waterbodies assessed for their suitability to supporting great crested newt using the	mid-April to end- June 2024	No further survey proposed to establish baseline. 18 waterbodies suitable for great crested newt (three ponds and seven ditches) were present within the Site that were subject to further survey.

[11] Dean, M., (2021); 'Water vole field signs and habitat assessment. A practical guide to water vole surveys'. Pelagic Publishing, Exeter.
[12] Strachan, R., et al. (2011); 'Water Vole Conservation Handbook: Third Edition'. Wildlife Conservation Unit, Oxford
[13] Chanin P. (2003). 'Monitoring the Otter *Lutra lutra*'. Conserving Natura 2000 Rivers Monitoring Series No.10 English Nature, Peterborough.
[14] Natural England (2014). 'Otters: surveys and mitigation for development projects'. Natural England and Department for Environment, Food & Rural Affairs, Worcester.

Survey	Survey Area	Methodology	Dates	Observations
	appropriate and access secured).	Habitat Suitability Index (HSI) assessment[15]. Where suitable breeding waterbodies were identified during the HSI assessment, an eDNA survey with reference to industry standard methodology[16] .		Twelve off-site waterbodies within 250 m of the Site were scoped in for further survey. Of this number: - Four were subject to further eDNA survey in 2024 which were negative for great crested newt. - Four could not be accessed for survey but desk study records indicate they are unlikely to support breeding great crested newt due. This is based on pre-existing survey information (negative eDNA results from surveys undertaken by third-parties in 2022-2023). - Access permission could not be secured for the other four waterbodies and the status of great crested newt at these ponds is unknown. This is considered further in later stages of this chapter.
Aquatic invertebrate survey	Targeted / selected watercourses within the Proposed Solar Areas and Eastern Biodiversity Mitigation Area	3 minutes netting using a 1 mm mesh hand net in each stretch of ditch to standardise the survey approach. Separate search (1 minute) to look for certain taxa (e.g. caddis-flies and leeches) fixed to woody debris / rocks and to sample surface water taxa such as whirligig beetles, pond skaters and water crickets. Physical habitat characteristics recorded.	June 2024	No further survey proposed to establish baseline. Watercourses selected for targeted survey included: - Those designated as Local Wildlife Sites (LWSs) due to the presence of notable aquatic invertebrates, to confirm the current status of the invertebrate assemblage. - Other non-LWS watercourses potentially suitable for notable aquatic invertebrates (i.e., they had suitable water levels and supported varied and abundant aquatic plant communities) or had similar characteristics to the other LWS designated watercourses.

[15] Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000); ' Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus)'. Herpetological Journal 10(4), 143-155.

[16] Biggs J., Ewald N., Valentini A., Gaboriaud C., Griffiths R.A., Foster J., Wilkinson J., Arnett A., Williams P., and Dunn F. (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.

Current baseline conditions and preliminary ecological evaluation

7.6.3 The Site is located around Sturton le Steeple (as shown on **Figure 1.1 -Site Location Plan [EN010163/APP/6.4.1]**) in a rural landscape characterised by agricultural land with occasional villages and individual properties. West Burton Power Station is adjacent and to the north of the Site, and the River Trent bounds the Site to the east. Agricultural land is located to all aspects of the Site.

7.6.4 The Site extends to approximately 888.3hectares (ha) and comprises primarily large arable fields with boundary hedgerows and individual trees. There is a network of ditches and drains present and several ponds and waterbodies. There are occasional small woodland blocks, grassland pasture fields, and agricultural buildings.

Desk study

Species and habitats of importance

7.6.5 A data search for records of protected species, habitats and species of principal importance (SPI) and other notable species within 2km of the Site was requested from Nottinghamshire Biodiversity and Geological Records Centre (NBGRC) and Lincolnshire Environmental Records Centre (LERC) in March 2024.

7.6.6 Other sources such as the Nottinghamshire Local Biodiversity Action Plan (LBAP) have also been reviewed to identify habitats of local importance (Nottinghamshire Biodiversity Action Group, 2020).

7.6.7 Further detail on desk study methods for species and habitats is set out in the relevant feature **Appendices 7.2 to 7.11 [EN010163/APP/6.3.7].**

7.6.8 Desk study results for species and habitats are included in the relevant section of this chapter and its appendices.

7.6.9 For most receptors, consideration of records up to twenty years old as of the request date is included within this report where relevant, as older records are less likely to be of relevance to the current baseline in the local area. Older records (i.e., those over twenty years) were nonetheless reviewed as part of the desk study and are included where it is considered that they could be relevant to the Site, for example they occur on or adjacent to the Site.

Designated sites of nature conservation interest

7.6.10 **Appendix 7.2 - Designated Sites [EN010163/APP/6.3.7]** sets out in detail the methods applied in the desk study for statutory and non-statutory designated sites of nature conservation interest.

7.6.11 A data search for records of non-statutory local designated sites within 2 km of the Site was requested from NBGRC LERC in March 2024.

7.6.12 The MAGIC application[17] was accessed to identify nationally designated statutory sites of nature conservation interest within 5 km of the Site and the location of Natural England's Impact Risk Zones (IRZ)[18] for statutory designated sites.

7.6.13 A search for internationally designated sites of nature conservation interest was undertaken within 10 km of the Site. The search was extended to 30 km for Special Protection Areas (SPAs) and Ramsar Sites, as well as any Special Areas of Conservation (SACs) that include bats as qualifying features.

7.6.14 The presence of ancient woodland within 2 km was also checked using the MAGIC application.

7.6.15 In the absence of prescriptive industry guidance on search areas, the CIEEM guidelines on determining Zones of Influence were considered, as was the potential for functional linkages between the Site and designated nature conservation sites.

Statutory designated sites

7.6.16 Within the search areas, there are six biological Site of Special Scientific Interest (SSSI)s, four SACs, one SPA and one Ramsar site, which are set out below. There are no sites within the search area for which bats are a qualifying feature.

7.6.17 The Site does not coincide with any internationally or nationally statutory designated sites.

7.6.18 The nearest internationally designated site is Birklands and Bilhaugh SAC which is 17 km[19] southwest from the Site. It is designated for its oak wood habitat, rich invertebrate fauna, and diverse fungal assemblage.

[17] Multi-Agency Geographical Information in the Countryside (2025). [Online] Available from http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx [last accessed 12 March 2025].
[18] The Impact Risk Zones (IRZs) are a GIS tool developed by Natural England to make an initial assessment of the likely risk of impacts on SSSIs posed by developments. The IRZs tool comprises a series of zones around each SSSI and within each zone, the tool specifies the types of development which, at that distance, have the potential to have adverse impacts.
[19] All measurements taken within this report are approximate and from the nearest point of the Site.

7.6.19 Thorne and Hatfield Moors SPA is 19.5 km northwest from Site. It is designated for its populations of European nightjar *Caprimulgus europaeus*, which is closely associated with lowland heathland and felled or recently planted conifer plantations.

7.6.20 Hatfield Moor SAC is also 19.5 km northwest at its closest point and is designated for its bog habitat and invertebrate fauna.

7.6.21 The Humber Estuary Ramsar is 25.5 km north from the Site and supports internationally important assemblages of passage and wintering waders and waterfowl, as well as supporting aquatic and marine species.

7.6.22 The Humber Estuary SAC is 25.5 km north from the Site and is designated for its coastal habitats and Annex II marine fauna such as sea lamprey *Petromyzon marinus*, river lamprey *Lampetra fluviatilis* and grey seal *Halichoerus grypus.*

7.6.23 Thorne Moor SAC is more than 28 km north from the Site and is designated for its bog habitats and invertebrate fauna.

7.6.24 The closest nationally designated site is the Clarborough Tunnel SSSI, which is 40 m west of the Western Biodiversity Mitigation Area of the Proposed Development. This means that a small area of the Proposed Development (0.01 ha) falls within the IRZ of the SSSI. The SSSI is formed of four units (classed as calcareous grassland units), which were assessed as being in unfavourable-recovering condition, last assessed by Natural England in 2011[20]. A visit by an ecologist from BSG Ecology to the northeastern unit of the SSSI on 19th July 2024 confirmed that the SSSI is a mix of orchard, grassland, scrub and woodland. Some damage to the grassland was observed from a recent campfire. A single grassland quadrat sample was undertaken within the SSSI to give an indication of species richness in comparison to the grasslands within the Site (noting that no calcareous grassland has been identified within the Site). Aerial imagery indicates that the proportion of open grassland within the SSSI is fairly low (ca. 0.8 ha out of the total 8.5 ha are of the SSSI), which was also evident during the walkover, and the quadrat sample indicates that the grassland supports ca. 12 species per m^2 (refer to **Appendix 7.3 - Habitat Report [EN010163/APP/6.3.7]** for further detail).

[20] Natural England (undated) Designated Sites View – Clarborough Tunnel SSSI [online] available at: https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1000656 (last accessed 12 March 2025)

Non-statutory designated sites and ancient woodland

7.6.25 There are 30 non-statutory designated sites, one Ancient Semi-Natural Woodland (ASNW), and one Plantation on Ancient Woodland Site (PAWS) within the 2 km search area. Details of all non-statutory designated sites and ancient woodlands within the search area are provided in **Appendix 7.2 - Designated Sites [EN010163/APP/6.3.7].**

7.6.26 Five LWS are within the Site, and two LWSs are within 100 m of the Site. Details of their designations and current status is provided in **Table 7.2** below.

7.6.27 The remaining LWSs are scoped out of further consideration on the basis of their distance from the Site and the nature of the Proposed Development which is unlikely to have a ZoI with respect to LWSs beyond their respective distances.

Table 7. 2 - Summary of Local Wildlife Sites at the Site and within 100 m

Site Name and Designation	Distance from Site	Feature(s) of interest
Blue Stocking Lane, Clarborough	Partially within the Site (Western Biodiversity Mitigation Area)	A green lane with species-rich grassland and hedgerows. The LWS extends northwards out of the Site, along a woodland edge. For the part of the LWS within the Site, the LWS citation lists the following species as present: meadow fescue *Schedonorus pratensis*, tor-grass *Brachypodium pinnatum* common knapweed *Centaurea nigra*, meadow vetchling *Lathyrus pratensis*, lady's bedstraw *Galium verum*, spiny restharrow *Ononis spinosa,* and meadowsweet *Filipendula ulmaria*. All species except meadow fescue and tor-grass were observed within the three grassland quadrat samples taken from the part of the LWS that falls within the Site, in July 2024 (refer to **Appendix 7.3: Habitat report [EN010163/APP/6.3.7]**). Meadow fescue and tor-grass were also not listed within the July 2023 survey data held by NBGRC. The quadrat samples indicate that the part of the LWS withing the Site includes otherer neutral grassland with 8-17 vascular plant species per m^2. The diversity is lower in the south of the LWS, as blackthorn scrub and meadowsweet begin to dominate the sward.
High House Road Verges, Sturton Le Steeple	Partially within the Site (Proposed Solar Areas)	A notable neutral grassland, ditch bank communities and species-rich hedgerow along a track. The LWS citation lists false oat-grass *Arrhenatherum elatius*, tall fescue *Schedonorus arundinaceus*, tor-grass *Brachypodium pinnatum* and cock's-foot *Dactylis glomerata*, agrimony *Agrimonia eupatoria*, common knapweed *Centaurea nigra*, cowslip *Primula veris,* meadow vetchling *Lathyrus pratensis,* greater stitchwort *Stellaria holostea*, hairy St John's-wort *Hypericum hirsutum* and primrose *Primula vulgaris*

Site Name and Designation	Distance from Site	Feature(s) of interest
		with wetter area at the eastern end supporting water figwort *Scrophularia auriculata*, water mint *Mentha aquatica* and common fleabane *Pulicaria dysenterica*. Three quadrat samples were taken from the part of the LWS that falls within The Site in July 2024 (refer to **Appendix 7.3: Habitat report [EN010163/APP/6.3.7]**), and these suggest that the trackside verge diversity ranges from 6 to 12 species per m^2, with the greatest diversity in the eastern part of the LWS, nearer the railway, but still within the Site.
Mother Drain, Upper Ings	Partially within the Site (Eastern Biodiversity Mitigation Area)	A drain of interest for water beetles. The drain is described as supporting an assemblage of local species such as water beetle *Limnebius nitidus*, and water bugs *Notonecta* maculata and *Notonecta viridis*. Aquatic invertebrate surveys were undertaken on 03 June 2024 to confirm the current status of the invertebrate assemblage (refer to **Appendix 7.11: Aquatic invertebrates [EN010163/APP/6.3.7]** report for the full methodology).
Thornhill Lane Drain, Littleborough	Within the Site (Eastern Biodiversity Mitigation Area and Proposed Solar Areas)	A drain of interest for water beetles. The LWS citation lists the following interests: 25 Water Beetle species and 5 water bug species have been recorded from the drain; including water beetles *Agabus uliginosus*, *Agabus didymus, Cercyon convexiusculus, Graptodytes pictus* and *Laccophilus hyalinus*. Water bugs recorded include Water scorpion *Nepa cinerea* and Water cricket *Velia caprai.* Aquatic invertebrate surveys were undertaken on 3 June 2024 to confirm the current status of the invertebrate assemblage (refer to **Appendix 7.11: Aquatic invertebrates [EN010163/APP/6.3.7]** report for the full methodology).
Littleborough Lagoons	Within the Site (Eastern Biodiversity Mitigation Area)	A shallow lagoon with flood bank and drain of botanical and ornithological importance. The LWS citation lists species such as bulbous rush *Juncus bulbosus*, creeping yellow-cress *Rorippa sylvestris*, celery-leaved buttercup *Ranunculus sceleratus*, red goosefoot *Chenopodium rubrum*, water plantain *Alisma plantago-aquatica*, common spike-rush *Eleocharis palustris*, reed sweet-grass *Glyceria maxima* and greater yellow-cress *Rorippa amphibia* with willow *Salix* sp. and hawthorn *Crataegus monogyna* growing along the banks of the lagoon. The LWS is noted as having ornithological importance for wintering wildfowl and passage migrants. The wintering and breeding bird surveys undertaken by BSG Ecology during 2023 and 2024, found assemblages of wetland birds throughout the breeding and non-breeding seasons (refer to **Appendix 7.4: Breeding bird report**

Site Name and Designation	Distance from Site	Feature(s) of interest
		[EN010163/APP/6.3.7], Appendix 7.5: Wintering bird report [EN010163/APP/6.3.7]).
West Burton Meadow	Off-site, adjacent north Site boundary.	An unimproved ridge and furrow grassland with an excellent species content.
Clarborough Tunnel	Off-site, 40 m west of the Western Biodiversity Mitigation Area	A fine example of species-rich calcareous grassland and scrub developed around the tunnel top and cuttings on an active railway line - a site of botanical and zoological interest. Also designated as Clarborough Tunnel SSSI detailed above.

Designated sites summary

7.6.28 The Site does not coincide with any internationally or nationally statutory designated sites. The closest nationally designated site is Clarborough Tunnel SSSI, which is 40 m southwest of part of the Site that forms the Western Biodiversity Mitigation Area. A small area of the Proposed Development (0.01 ha) falls within the IRZ of the SSSI.

7.6.29 All other statutory designated sites (nationally and internationally designated) are considered to be sufficiently distanced from the Site and are not considered to be in the ZoI of the Proposed Development.

7.6.30 Seven LWS intersect or are within 100 m of the Site. Four of these relate to the Biodiversity Mitigation Areas: Littleborough Lagoon LWS, Mother Drain LWS and Thornhill Drain LWS are located in the Eastern Biodiversity Mitigation Area, and Blue Stocking Lane, Clarborough LWS is partially within the Western Biodiversity Mitigation Area. The LWSs are cited for their aquatic invertebrate interest, botanical interest, or bird interest. Blue Stocking Lane, Clarborough LWS is cited for its grassland; these were confirmed via survey in 2024 to be species-rich, but it was noted that some areas of lower diversity occurred in the south of Blue Stocking Lane, Clarborough LWS, where hawthorn and blackthorn scrub were encroaching.

7.6.31 High House Road Verges, Sturton Le Steeple LWS is cited for its grass verges but was found to have low species diversity in places during field work performed in 2024. The verges currently appear to be subject to homogenous cutting, with fairly low diversity of forbs. An area of species-rich grassland was identified to the east of the railway line, as a continuation of the track verges, but are not currently within the LWS boundary.

7.6.32 Mother Drain, Upper Ings, LWS and Thornhill Lane Drain, Littleborough LWS are within the Eastern Biodiversity Mitigation Area and cited for their aquatic invertebrate interest. The invertebrate assemblage is not yet reported, but the drains were found to have relatively low water levels, with Mother Drain including invasive non-native species (Canadian waterweed) and high cover of algae. Both drains were found to have moderate diversity of aquatic plans (<10 species per 20m section).

7.6.33 Littleborough Lagoons LWS is also in the Eastern Biodiversity Mitigation Area. It is cited for its botanical and bird interests. The lagoon is regularly flooded by the River Trent, which may introduce nutrients and seeds from offsite. Scrub is present along the northern banks of the lagoon, but there is little scrub cover in the south.

7.6.34 West Burton Meadow LWS and Clarborough Tunnel LWS are located off-site but within 100m of the Site boundary, both of which are designated on account of their habitat interest.

Evaluation: designated sites of nature conservation interest

7.6.35 SACs, SPAs and Ramsar sites are evaluated as important at the **International level**.

7.6.36 SSSIs are evaluated as important at the **National level**.

7.6.37 LWSs are evaluated as important at the **County level**.

Habitats

7.6.38 **Appendix 7.3 – Habitat Report [EN010163/APP/6.3.7]** provides detailed results, which are summarised below.

Desk study

7.6.39 Species recorded on or near the Site in the last 20 years that are on the Nottinghamshire Rare Plant Register[21] are presented in **Appendix 7.3 – Habitat Report [EN010163/APP/6.3.7]**. Twenty-one records for such plants are either within the Site or within 1 km of the Site. It is not possible to give accurate locations because some records are located to a 1 km square resolution.

7.6.40 Notable plant records and field observations are generally restricted to ditch features or field edges or are outside the Site. The exception is rye brome *Bromus secalinus* with records in field edges, but it was also observed amongst the crops during field survey. It is a nationally vulnerable species but is not considered to be

[21] Wood, D. & Woods, M. (2021); 'Nottinghamshire Vice County 56 Rare Plant Register 3rd edition'. Nottingham City Council, Nottingham.

scarce in Nottinghamshire (i.e. it is 'scattered' throughout the county in arable fields).

7.6.41 Priority habitat locations (traditional orchard and deciduous woodland) as identified on MAGIC application match those found on the Site. Some of the coastal floodplain and grazing marsh record as shown on MAGIC that are located within the Proposed Solar Areas were found to be arable cropland but other examples of the habitat have been found on the Site in the Eastern Biodiversity Mitigation Area adjacent the River Trent.

7.6.42 There are no registered ASNWs, PAWS; or ancient wood pastures within the Site (concluded from review of the MAGIC application and field survey at **Appendix 7.3 – Habitat Report [EN010163/APP/6.3.7]**). The closest ancient woodland is 1.3km to the east of the Site (known as Burton Wood) and no ancient woodlands have direct habitat connectivity with the Site, via hedgerows, other semi-natural habitat corridors, or footpaths.

Field survey summary description

7.6.43 The predominant habitat is arable cropland on large open fields bound by native hedgerows, field margins, or drainage ditches. A small number of fields appear to be managed as permanent pasture (near the River Trent, in the north of the Site, and in the southwest of the Site); or were grassland ley at the time of the surveys.

7.6.44 Wet ditches are more prevalent in the east of the Site, closer to the River Trent, and the large land drains (such as the Catchwater Drain and Mother Drain) are considered to be river/stream habitat based on their width, water flow and their function as tributaries to the River Trent. Two further streams are present: the Oswald Beck in the north of the Site, and an unnamed stream in the south-west of the Site. The River Trent does not form part of the Site (and it is more than 10m outside the Site boundary and is therefore outside of the scope of requiring assessment as part of the MoRPh survey).

7.6.45 A small area of the Site intersects the West Burton Power Station, which is currently being decommissioned. The power station is currently developed land, grassland (modified grassland/road verges and unmown other neutral grassland plots) with mature and semi-mature individual trees.

7.6.46 Mature trees are present within the hedgerows at sparse intervals. Some of the mature trees in hedgerows support veteran features (such as fungal growth, large cavities, deadwood, or broken main stems). However, these have been assessed by

arboricultural specialists and have not been recorded as veteran trees or ancient trees (refer to **Appendix 6.5 – Arboricultural Survey Report [EN010163/APP/6.3.6]**).

7.6.47 Woodland cover is low, covering less than 0.1% of the Site. The woodland is mainly along rail or watercourse corridors, in shelter-belt plantations, and in one copse (Fenton Gorse) that is considered to qualify as priority habitat (lowland deciduous woodland).

7.6.48 An active railway runs through the Proposed Solar Areas which comprises ballast trackway and embankments that support grassland, scrub and trees.

7.6.49 Other priority habitats include hedgerows, some of the arable field margins, a traditional orchard, and coastal and floodplain grazing marsh. The latter is a poor example of its habitat, based on the lack of wet depressions and extensive ditch habitats. Part of this area includes the Littleborough Lagoon, which is also likely to qualify as priority habitat (eutrophic standing water).

7.6.50 The traditional orchard in the north of the Site includes around 40 mature apple *Malus* spp. and pear *Pyrus* spp. trees enclosed by hedgerows; the grassland below is subject to sheep grazing.

7.6.51 Priority habitat arable field margins support tussocky grasses and have been confirmed as being under active management for wildlife by the tenant farmers.

7.6.52 Approximately 69 km of hedgerows are present and over 90% of those hedgerows are assessed as species-poor, particularly those in the centre and east of the Site. Higher distinctiveness hedgerows are present as species-rich hedgerows, particularly in the northwest of the Site, or as hedgerows with trees or hedgerows associated with a ditch/bank, which are scattered across the Site. The hedgerows are typically formed of hawthorn and blackthorn, with other native species such as ash, elder and/or field maple. Most hedgerows appear to be cut annually in late winter. Fourteen hedgerows were assessed to be 'important' under the Wildlife and Landscape Criteria of the Hedgerow Regulations, based on the hedgerow assessment methods described in **Appendix 7.3 - Habitat Report [EN010163/APP/6.3.7]**.

7.6.53 Two small ponds and one lake are present. The ponds are wet depressions in field corners and are overgrown with trees or scrub, and not considered to be of high ecological quality. The ponds are not considered to qualify as priority habitat as

they do not support protected species, and are unlikely to support notable species or exceptional assemblages of species due to the lack of aquatic vegetation, overshading, and turbidity. Littleborough Lagoon is over 35,000m^2 of open water and cited as a LWS (refer to **Appendix 7.2 - Designated Sites [EN010163/APP/6.3.7].** Observations throughout winter indicate that the lagoon is periodically inundated with floodwater from the River Trent, which is likely to increase nutrient levels. Field survey work indicates that Littleborough Lagoon is likely to meet the definition of the eutrophic standing water Habitat of Principal Importance (HPI).

7.6.54 Other habitats include developed land and bare ground such as roads/tracks, farmyards, and buildings; and small pockets of native scrub, ruderal vegetation and tall forbs, which are generally in field corners or under pylons where cultivation and mowing is less frequent.

7.6.55 Notable plant species are generally in offsite designated sites or are confined to field edges and ditches.

Local (Nottinghamshire) BAP priority habitats on or adjacent to the Site

7.6.56 The following habitats have been identified as Habitats of Conservation Concern in the Nottinghamshire LBAP, for which Habitat Action Plans have been developed (last updated March 2008):

- Ancient and/or species rich hedgerows.
- Arable fields.
- Cereal field margins.
- Ditches.
- Eutrophic standing waters.
- Mesotrophic lakes.
- Improved grassland.
- Lowland wet grassland.
- Oak-birch woodland.
- Reedbed; and,
- Rivers and streams.

Notable plants

7.6.57 Rye-brome *Bromus secalinus* is on the Nottinghamshire Rare Plant Register and it is scattered across the Site (mainly in the field margins of the southern areas of the Site). Although it is considered to be near threatened in England, the species is described as "scattered" in Nottinghamshire.

7.6.58 Spiny restharrow *Ononis spinosa* was observed on the Site on the verges of a bridleway within the Blue Stocking Lane, Clarborough LWS. It is listed as scarce on the Nottinghamshire Rare Plant Register, and near threatened in England. It was most prevalent in the more open verges of the LWS.

Invasive non-native plants

7.6.59 During the onsite field surveys, Canadian waterweed was observed within Mother Drain in the east of the Site. No other Invasive Non-Native Species (INNS) have been noted within the Site to date.

Evaluation

7.6.60 The habitats are typical of an agricultural landscape and are representative of the local area. Key habitats of ecological value include the priority habitats, which are mainly confined to field boundaries or Biodiversity Mitigation Areas.

7.6.61 The dominant arable crop land is a habitat of intrinsically low interest. The Site supports rye-brome and spiny restharrow which are scattered / scarce in Nottinghamshire and near threatened in England, but these are localised within the Site. Nonetheless the Site is large (over 850 ha) and this, and the presence of habitats of higher intrinsic interest (while confined to localised and discreet areas), elevate the overall habitat interest of the Site. The HPI habitats taken together are also typical of the local agricultural landscape but reasonably extensive and are evaluated as important at the **Local level.**

Breeding birds

7.6.62 **Appendix 7.4 - Breeding Bird Report [EN010163/APP/6.3.7]** provides the detailed results of the breeding bird survey, which are summarised below.

Desk study

7.6.63 There are three records of birds from within the Site boundary which all relate to Littleborough Lagoon in the Eastern Biodiversity Mitigation Area in May 2012, including: pochard *Aythya farina* (one pair), gadwall *Mareca strepera* (seven male, four female), shoveler *Spatula clypeata* (one male). There are 24 recent records of birds recorded during the breeding period adjacent to the southern boundary of the

Eastern Biodiversity Mitigation Area at Littleborough. The descriptions provided with the records suggest that some of these records could relate to Littleborough Lagoon (which is within the Eastern Biodiversity Mitigation Area) and Out Ings (600 m north of the Eastern Biodiversity Mitigation Area), particularly water or wading bird species. Other bird records within the Littleborough area include cuckoo *Cuculus canorus*, peregrine falcon *Falco peregrinus*, meadow pipit *Anthus pratensis* and yellow wagtail *Motacilla flava*; however, the records did not specify if these were breeding or non-breeding birds. A further 17 records are provided for Out Ings, typically for water and wading birds, but also for marsh harrier *Circus aeruginosus* (a non-breeding male bird) and red kite *Milvus milvus* (flying over the area).

7.6.64 The desk study provided 47 bird records associated with the West Burton Power Station site adjacent the Site to the north, between 2008 and 2019. This includes records of confirmed breeding peregrine falcon, turtle dove *Streptopelia turtur*, great spotted woodpecker *Dendrocopos major*, green woodpecker *Picus viridis*, skylark and sand martin *Riparia riparia*. Further records of breeding water and wading birds include mute swan *Cygnus olor*, mallard *Anas platyrhynchos* and little grebe *Tachybaptus ruficollis*.

7.6.65 Breeding bird surveys undertaken in support of the adjacent quarry application from March to June 2010 recorded 82 bird species of which 57 were considered to be breeding within the survey area. This included a number of species identified for conservation action including breeding quail *Coturnix coturnix*, skylark, curlew *Numenius Arquata*, dunnock *Prunella modularis*, yellow wagtail *Motacilla flava*, song thrush *Turdus philomelos*, lapwing *Vanellus vanellus*, tree sparrow *Passer montanus*, linnet *Linaria cannabina*, yellowhammer *Emberiza citrinella*, grey partridge *Perdix perdix*, and barn owl *Tyto alba*.

7.6.66 The Birds of Nottinghamshire Annual Report for 2020 (Nottinghamshire Birdwatchers, 2023) was reviewed. It does not give population estimates for the species, but it does define levels of rarity in the county based on numbers of records (see **Appendix 7.4 - Breeding Bird Report [EN010163/APP/6.3.7]**). Nottinghamshire Birdwatchers were contacted in May 2024 and they confirmed the only source of bird population information in the county to be the Annual Report.

Field survey

7.6.67 During the 2024 breeding bird surveys, 100 species were recorded at the Site, of which 47 were confirmed or considered likely to be breeding. These included seven

that are 'Red listed', 14 that are 'Amber listed' and one 'Green listed' species (barn owl) which is listed on Schedule 1 of The Wildlife and Countryside Act 1981. Seventeen of these are listed as SPI or are a Species of Conservation Concern in the Nottinghamshire BAP. The remaining breeding bird species in the Site are all 'Green listed' or are non-native species and are of least conservation concern.

7.6.68 Breeding bird activity from species of conservation concern (i.e., those that are red and amber listed[22]) was widespread across the Site, with main habitat types used including:

- Open habitats, such as arable and grassland pasture fields. Arable habitats are widespread across the Site and locally and are typically used by skylark and occasionally yellow wagtail which are species of conservation concern. Skylark is discussed and assessed separately below. Six pairs of lapwing were also recorded as likely breeding in the Eastern Biodiversity Mitigation Area within wet grassland habitats, and flocks of 30 to 50 lapwing were recorded foraging in this area during June and July 2024. One pair of meadow pipit *Anthus pratensis* was likely breeding in the Eastern Biodiversity Mitigation Area. Wet grassland habitat is scarce within the Site beyond the Eastern Biodiversity Mitigation Area but is frequent in the local area along the River Trent corridor.
- Scrub, trees, woodland, hedgerows and associated grassland margins. These habitats are widespread across the Site and locally and are typically used for breeding by species of conservation concern such as yellowhammer *Emberiza citrinella*, linnet *Linaria cannabina*, grey partridge *Perdix perdix*, dunnock, reed bunting *Emberiza schoeniclus,* stock dove *Columba oenas,* whitethroat *Curruca communis*, wren *Troglodytes troglodytes*, willow warbler *Phylloscopus trochilus* and woodpigeon *Columba palumbus*. A wide variety of Green listed species also used these habitats for breeding.
- Wetland habitats such as waterbodies and drains / ditches are used by low numbers of mallard *Anas platyrhynchos* and moorhen *Gallinula chloropus* and several Green listed and non-native species. Wetland habitats are scarce

[22] Stanbury, A., at el. (2021). 'The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain'. British Birds 114: 723-747.

within the Site but are frequent in the local area along the River Trent corridor.

7.6.69 Several birds of prey species of conservation concern were recorded, with barn owl *Tyto alba* and kestrel *Falco tinnunculus* likely breeding at the Site within trees and buildings. Tawny owl *Strix aluco* is likely breeding within a woodland block at the Site. Peregrine falcon *Falco peregrinus* was regularly recorded at the Site and is likely breeding on buildings within West Burton Power Station adjacent to the north of the Site, and these birds are likely to hunt within the Site as part of a wider feeding resource in the local area. Marsh harrier *Circus aeruginosus* and hobby *Falco Subbuteo* were recorded flying through / over the Site occasionally, but not on a regular basis. The marsh harrier was hunting in winter on two occasions in the eastern biodiversity area and was considered likely by the surveyor to be the same individual. Little owl *Athene noctua* is a non-native species that is likely breeding in trees or buildings at the Site.

Evaluation: general assemblage

7.6.70 The Site supports a typical breeding bird assemblage for the habitats present and the Site's geographic location. All the bird species of conservation concern found within the Site breed throughout the county and are noted to be 'common' or 'fairly common' within Nottinghamshire[23] apart from barn owl (discussed below).

7.6.71 Except for skylark (which is evaluated separately, below) the Site is considered to be of **Local level** importance for breeding birds.

Evaluation: skylark

7.6.72 Skylark territories were recorded across the Site at a relatively consistent density, primarily within arable fields and occasionally in grassland fields. This comprised peak counts of 105 territories within the Proposed Solar Areas in 2023 (90 in 2024), 17 in the Western Biodiversity Mitigation Area (in both 2023 and 2024) and 13 in the Eastern Biodiversity Mitigation Area in 2024 (11 in 2023 but in a slightly smaller survey area). There is no skylark population data available for Nottinghamshire, although the Nottinghamshire 2020 bird report notes the species is a 'common resident' and it is likely that it is widespread and well-represented within suitable habitat. A review of aerial photography (Google Earth Pro, accessed March 2025) shows that there are extensive areas of large arable fields within the district area

[23] Nottinghamshire Birdwatchers. (2023). 'The Birds of Nottinghamshire Annual Report for 2020'. Nottinghamshire Birdwatchers

(Bassetlaw) and county (Nottinghamshire) which are likely to support breeding populations of skylark at similar densities to those present at the Site. Further extensive areas of arable land are also present beyond the River Trent to the east of the Site within Lincolnshire.

7.6.73 Given the area of land covered by the Site and the number of likely breeding territories present, the Site is considered to be of **District level** importance for breeding skylark.

Barn owl

7.6.74 **Appendix 7.5 - Barn Owl Report [EN010163/APP/6.3.7]** (provided as a confidential document) provides detailed results, which are summarised below.

Desk study

7.6.75 The desk study records from local biological data centres provided no records of barn owl within the Site, but over 90 records were returned within 2 km; none were of confirmed nesting / breeding sites. Pre-existing survey data for the adjacent quarry planning application in 2010 included a record of a barn owl nest site in a tree-mounted nest box within the Eastern Biodiversity Mitigation Area.

Field survey

7.6.76 The ground level assessment identified 14 trees, three groups of trees and one building within the Proposed Solar Areas which provide potential features to support nesting barn owl. Evidence of recent use by barn owl, such as pellets and observations of owls, was associated with several of these features, but no nests were confirmed during the preliminary survey. The design of the Proposed Development is such that no direct impacts on habitat that could be used by roosting or nesting barn owl will be affected. The need for further survey will be assessed once the construction detail and timing are known, and if the risk of disturbance of a barn owl becomes a possibility.

7.6.77 Barn owls were frequently recorded during bird surveys, with activity spread across the Proposed Solar Areas. Based on the results of the field work (preliminary barn owl survey, breeding bird and wintering bird characterisation surveys) and the amount of suitable foraging habitat,, it is estimated that the Proposed Solar Areas support at least two regularly used barn owl territories. Building 3 was found to be a regular roosting site for barn owl, as well as a potential nest site. It is also considered likely that tree(s) along access tracks in the east of the Proposed Solar

Areas (including Cross Common Lane and Upper Ings Lane) also support roosting (and possibly nesting) barn owl.

7.6.78 Additional barn owls are likely to be roosting / nesting within the Biodiversity Mitigation Areas and in off-site barns close to the Proposed Solar Areas, and birds from the nest / roost locations will likely forage within the Site as part of a landscape-scale resource.

7.6.79 Optimal foraging habitat for barn owl is typically rough grassland that has low frequency management and has formed grass tussocks and a layer of thatch on the ground[24]; such habitat will support higher densities of small mammals (field vole *Microtus agrestis* and common shrew *Sorex araneus*) upon which they prey. Many of the arable field margins and drains present throughout the Site support rough grassland and are likely to be used for foraging.

7.6.80 The arable fields which form the majority of the Site are sub-optimal habitat for foraging barn owl. The grassland pasture fields within the Proposed Solar Areas are largely sub-optimal due to their short sward height from grazing, which reduces their suitability to support small mammals. The grassland fields in the Eastern Biodiversity Mitigation Area are also grazed, but in some areas has a more varied and taller sward height and may offer better foraging.

Evaluation

7.6.81 Barn owl is listed in Schedule 1 of the Wildlife and Countryside Act 1981 and on Nottinghamshire LBAP as a Species of Conservation Concern. It is likely to breed at the Site, and there is the resource of mature trees and buildings that provide a variety of suitable roost / nesting opportunities. The majority of habitat within the Site (arable land) is suboptimal for foraging but there is a network of rough grassland field margins and drain embankments that provide optimal foraging habitat. A review of aerial photography (Google Earth Pro, accessed March 2025) indicates that similar habitats are common off-site in the local area.

7.6.82 On the assumed basis of at least two pair of breeding barn owls within the Site and the largely sub-optimal foraging habitats present (i.e., arable fields), the Site is considered to be of **Local level** importance for barn owl.

[24] Shawyer C (2012); 'Barn Owl *Tyto alba* Survey Methodology and Techniques for use in Ecological Assessment'. Wildlife Conservation Partnership.

Wintering birds

7.6.83 **Appendix 7.6 – Wintering Bird Report [EN010163/APP/6.3.7]** provides detailed results, which are summarised below.

Desk study

7.6.84 There were no wintering records from within the Site. A summary of nearby records of bird species identified for conservation action, and of those which are associated with the Humber Estuary Ramsar Site is provided below.

7.6.85 There are 18 records of wintering birds adjacent to the southern boundary of the Eastern Biodiversity Mitigation Area at Littleborough (2009 to 2019). Typically, these were water or wading bird species, including: little egret *Egretta garzetta*, common shelduck *Tadorna tadorna*, green sandpiper *Tringa ochropus*, Eurasian wigeon *Mareca penelope*, cormorant *Phalacrocorax carbo*, Bewick's swan *Cygnus columbianus bewickii,* mute swan, whooper swan *Cygnus cygnus*, dunlin *Calidris alpina*, European golden plover *Pluvialis apricaria* and lapwing. Short-eared owl *Asio flammeus* was also recorded.

7.6.86 Records from the villages of Sturton-le-Steeple, Fenton and Leverton dated between 2012 and 2020 which included several wading bird species and great grey shrike *Lanius excubitor*, lesser spotted woodpecker *Dendrocopos minor*, peregrine falcon *Falco peregrinus*, starling *Sturnus vulgaris*, fieldfare *Turdus pilaris* and whinchat *Saxicola rubetra*. Further details of wintering bird desk study results are presented in **Appendix 7.6 – Wintering Bird Report [EN010163/APP/6.3.7].**

7.6.87 Four wintering bird surveys were undertaken in support of the adjacent quarry application (one per month from November 2009 to February 2010). In total, 70 bird species were recorded within the survey area of the quarry application. This included a number of species identified for conservation action including peregrine falcon, wigeon, skylark, starling, fieldfare, song thrush, kingfisher *Alcedo atthis*, snipe *Gallinago gallinago*, herring gull *Larus argentatus*, dunnock, lapwing and willow tit *Poecile montanus*. It was noted that flocks of wading and waterbirds were present in the wetland areas adjacent the River Trent including Out Ings LWS north of the Eastern Biodiversity Mitigation Area of the Proposed Development.

Field survey

7.6.88 A total of 86 bird species were recorded at the Site during the wintering bird survey. Of this total, 46 species are of conservation concern (red / amber listed), are identified for conservation action at national level or local level (SPI or

Nottinghamshire Biodiversity Action Plan species) or are listed on Schedule 1 of the Wildlife and Countryside Act 1981. Nine are also associated with the Humber Estuary Ramsar Site as part of the wintering bird assemblages it supports.

7.6.89 A total of 68 bird species were recorded within the Proposed Solar Areas with 42 of the species being red/amber listed, and/or having local BAP status, and/or having S.41 status, and/or being of Ramsar site interest.

7.6.90 The Western Biodiversity Mitigation Area had a total count of 51 species with 32 being red/amber listed, local BAP, S.41, or of Ramsar site interest.

7.6.91 The Eastern Biodiversity Mitigation Area had a total count of 65 species with 42 being red/amber listed, local BAP, S.41, or of Ramsar site interest.

7.6.92 Wintering bird activity was widespread across the Site, with main habitat types used including:

- Open habitats, such as arable and grassland pasture fields. These habitats are widespread across the Site and locally, and were used by flocks of skylark, starling, fieldfare, linnet, woodpigeon and gull species. Lapwing were regularly recorded in the arable stubble and grassland fields in the Eastern Biodiversity Mitigation Area only, particularly where the fields had been flooded and water levels were receding.
- Scrub, trees, woodland, hedgerows and associated grassland margins. These habitats are widespread across the Site and locally and are used by species such as fieldfare, redwing, linnet, barn owl and yellowhammer.
- Waterbodies, ditches, inundated arable and grassland fields. These habitats are primarily within the Eastern Biodiversity Mitigation Area and supported a greater diversity of wetland birds and waders such as wigeon, greylag goose, lapwing, gull species, swan species and duck species, particularly on Littleborough Lagoon LWS.

7.6.93 A range of bird of prey species was recorded during the wintering bird survey, typically individuals and small numbers of hen harrier, marsh harrier, short-eared owl, merlin, sparrowhawk, barn owl and kestrel. Barn owl and kestrel were regularly recorded hunting for small mammals in the grassland margins along arable fields and watercourses throughout the Site. Hen harrier, marsh harrier, peregrine, merlin, short-eared owl and sparrowhawk were considered likely to be exploiting the presence of flocks of overwintering birds within the Site for hunting purposes,

particularly the wetland habitats in the Eastern Biodiversity Mitigation Area. It is likely that they use the habitats at the Site as part of network of similar habitats that are used by overwintering birds within the local area, particularly along the River Trent corridor where there are further waterbodies and areas that are likely flooded through the winter. Barn owl and kestrel are also likely to use other grassland habitats in the local area, which are well-represented along field boundaries and watercourses.

Evaluation

7.6.94 The Site supports a typical wintering bird assemblage for the habitats present and the Site's geographic location. The areas of the Site closer to the River Trent, particularly the wetland and adjacent farmland habitats in the Eastern Biodiversity Mitigation Area, supported a greater species diversity and higher numbers of birds, typically waders and waterbirds but also hunting birds of prey. Most of the bird species of conservation concern recorded within the Site are common and well-represented species throughout Nottinghamshire[25]. Those that are less common within Nottinghamshire, such as merlin, hen harrier, marsh harrier, short-eared owl, peregrine, curlew, and whooper swan, were recorded in low numbers and / or infrequently during the surveys. Larger numbers of starling and fieldfare were recorded throughout the Site and across most surveys; it is likely that the Site provides a good foraging resource for these species locally. The Site is considered to be of **Local level** importance for wintering birds.

Bats

7.6.95 **Appendix 7.7 - Bat Report [EN010163/APP/6.3.7]** provides detailed results, which are summarised below.

Desk study

7.6.96 The data search of MAGIC identified no European Protected Species Licence granted by Natural England for bats within 2 km of the Site.

7.6.97 The data search with NBGRC and LERC provided 331 records of bats. Records comprised the following species: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, Nathusius' pipistrelle *Pipistrellus nathusii*, noctule *Nyctalus noctula*, Leisler's bat *Nyctalus leislerii*, Daubenton's bat

[25] Nottinghamshire Birdwatchers. (2023). 'The Birds of Nottinghamshire Annual Report for 2020'. Nottinghamshire Birdwatchers

Myotis daubentonii, brown long-eared bat, Natterer's bat *Myotis nattereri*, *Plecotus auritus* and whiskered bat *Myotis mystacinus* or Brandt's bat *Myotis brandtii*.

7.6.98 Other notable desk study records include a record of a *Myotis* species emerging from a tree within the Eastern Biodiversity Mitigation Area at the Site in 2010 (grid reference SK 81744 83374) during field surveys in support of the adjacent quarry application. Additionally, Littleborough church, situated adjacent to the southern boundary of the Eastern Biodiversity Mitigation Area, has records of brown long eared bat droppings and a grounded bat (also brown long eared), as well as common pipistrelle droppings, from 2018.

7.6.99 Records of four roosts were provided associated with unspecified buildings within West Burton Power Station situated immediately north of the Site; three common pipistrelle roosts (up to two bats per roost; all recorded in 2023) and a brown long eared roost (single bat, recorded in 2006).

Field survey

7.6.100 See **Appendix 7.7 – Bat report [EN010163/APP/6.3.7]** for detailed results. They are summarised below.

7.6.101 Bat surveys have not been undertaken in the Eastern and Western Biodiversity Mitigation Areas (unless such areas are in the zone of influence) as no intrusive development works are proposed, and therefore adverse impacts to bats are not expected.

Roosts

7.6.102 Roosting opportunities for bats are present throughout the Proposed Solar Areas and along the boundaries, comprising numerous trees, several buildings, and railway bridges / bridges over field drains. Further trees with roosting suitability are likely to be present in the Eastern and Western Biodiversity Mitigation Areas but unaffected by development.

7.6.103 The ground level tree assessment identified 71 trees and four groups of trees with PRF-M features (Potential roosting features are suitable for multiple bats and may therefore be used by a maternity colony), 51 trees and one group of trees with PRF-I features (Potential roosting features only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats).

7.6.104 Within or at the boundaries of the Proposed Solar Areas at the Site, there are nine buildings, two railway bridges, eight small bridges and two brick culverts along field

drains. There is one part-open sided agricultural barn that has high potential to support roosting bats and scattered bat droppings (unidentified species) were seen inside; it is unknown whether bats roost within the building, or if they use it for foraging / as a sheltered feeding perch. One building and one railway bridge have moderate roosting potential, and the other buildings / structures have either low or negligible roost potential.

7.6.105 No nocturnal presence / likely absence surveys for bat roosts have been undertaken as all buildings and trees with bat roost suitability are being retained, and significant impacts have been avoided through designed-in measures. Given the potential roosting resources available within the Proposed Solar Area and considering the bat activity observed during the activity surveys (which recorded locally typical species and did not indicate the presence of any significant roosts), the roosting assemblage is likely to be typical for the size of the Site, its geographic location and the habitats and roosting opportunities present. Should roosts be present within the Proposed Solar Area, they are likely to be small roosts of common, widespread species associated with trees or buildings such as common pipistrelle, soprano pipistrelle, noctule, Leisler's and *Myotis* (assumed Daubenton's, Natterer's, whiskered and / or Brandt's bat). No evidence has been recorded to suggest that roosts of high conservation significance, such as maternity roosts, are present in the Proposed Solar Area.

7.6.106 All potential roosting features are fairly common in the local area given the abundance of arable fields lined by hedgerows containing trees, as well as buildings in villages, agricultural buildings and field drains / bridges in the surrounding landscape.

Activity surveys

7.6.107 During static bat detector surveys, at least eight species of bat were recorded within the Proposed Solar Areas. Common pipistrelle accounted for the majority of bat activity (71% of all passes), with a *Myotis* species (likely Daubenton's, Natterer's, Brandt's and / or whiskered bats) and soprano pipistrelle commonly present. Leisler's, noctule, brown long eared, Nathusius' pipistrelle and barbastelle each accounted for 1% or less, of all bat activity. Commuting and foraging bat activity was fairly evenly distributed throughout the Proposed Solar Areas, predominantly recorded in association with the hedgerows, field drains and small pockets of woodland. Paired bat detectors were used to record activity from within three arable fields and an associated field boundary hedgerow (refer to Figure 7.7.2 of

Appendix 7.7 - Bat report [EN010163/APP/6.3.7]); low levels of bat activity were recorded from the interior of arable fields relative to the nearby hedgerows on field margins.

7.6.108 During the Night-time Bat Walkover (NBW) surveys, low numbers of bat passes were recorded within the Proposed Solar Areas during both surveys, and a total of five species of bat were recorded. Bat activity recorded during the surveys was typically from individual, or small numbers of bats. Activity was sporadic, but typically recorded along access tracks (each lined with two hedgerows), the vegetated railway and field drains, with increased activity also found along field boundary hedgerows. Low levels of activity associated with the open arable fields was recorded.

Evaluation

7.6.109 The majority of the Site is open arable farmland of limited value for bats. The woodlands, hedgerows, dense scrub, waterbodies and watercourses provide more suitable bat foraging and commuting habitat and there is habitat connectivity with the surrounding landscape in all directions.

7.6.110 Bat activity levels are considered to be typical for the habitats present, i.e., activity is largely associated with field boundary hedgerows, watercourses and woodlands, and the open arable fields do not appear to be regularly used for foraging or commuting. Most species recorded are widespread within Nottinghamshire. Barbastelle, Leisler's and Nathusius' pipistrelle are less common within the county, but activity from these species to-date has been low.

7.6.111 It is possible that the Site supports roosts within buildings and trees, but given the landscape and the results of the bat activity surveys there is no reasonable likelihood that significant roosts are present.

7.6.112 The habitats and potential roosts present at the Site and within the Proposed Solar Areas are well-represented in the local area and the Site is assessed being of **Local level** importance for bats.

Badger

7.6.113 **Appendix 7.8 - Badger report [EN010163/APP/6.3.7]** (published as a confidential document) provides detailed results, which are summarised below.

7.6.114 The desk study, including those of ecological surveys for adjacent planning applications and local biological data records, show that badger have historically

been present across the Site. A number of the records are consistent (or within the area of) setts identified during the 2024 field surveys for this assessment. Badger have been active within parts of the Site over the past 20 years, although the locations of setts and levels of activity appear to have changed over that time.

7.6.115 The Site provides predominantly 'secondary foraging habitat types', such as rough grassland, arable, scrub, and broadleaved woodland[26] and extensive areas of habitat suitable for sett building. The main habitats where activity and setts were recorded within the Site include woodland, along bank sides and bank tops of ditches, base of hedgerows, and arable field margins/rough, ungrazed grassland.

7.6.116 Badgers are a highly mobile species, and where currently not known to be present, can create new badger setts in suitable habitats quickly, as well as re-occupying disused setts and reducing use or abandoning setts recorded to be in current use, depending on conditions prevailing at the time.

Evaluation

7.6.117 Badgers are protected primarily for welfare reasons and the species is not one of nature conservation concern. It is also widespread in the locality. For this reason, it is **not formally evaluated**. Notwithstanding this, it is a protected species and measures to protect badger within the development and avoid actions that could give rise to an offence under the Protection of Badgers Act 1992 are outlined in later sections of this report.

Otter

7.6.118 **Appendix 7.9 – Otter and Water Vole Report [EN010163/APP/6.3.7]** provides detailed results, which are summarised below.

Desk study

7.6.119 The desk study returned 15 records relating to otter between 2009 and 2023. One record of field signs (prints and spraint) from 2010 relates to a dry ditch, Z27 (see Figure 7.9.1 within **Appendix 7.9 – Otter and Water Vole Report [EN010163/APP/6.3.7]**), in the southeast of the Site. A further record of prints and feeding remains from 2016 is located approximately 170 m from the Site, northeast of ditch ED4 (see Figure 7.9.1 within **Appendix 7.9 – Otter and Water Vole Report [EN010163/APP/6.3.7]**). The remaining records are relating to the River Trent, adjacent the eastern mitigation area of the Site.

[26] Badger Trust, (2023); 'Badger Protection: Best Practice Guidance for Developers, Ecologists and Planners (England)'. Badger Trust.

Field survey

7.6.120 All watercourses including some dry ditches within the Site are suitable for commuting otter, but there is limited foraging habitat and limited potential for resting sites within or close to watercourses for otter on the Site.

7.6.121 The highest suitability watercourses for otter foraging and resting sites are in the Eastern Biodiversity Mitigation Area and the centre and southwest of the Site. Six areas of land were identified as having potential to support otter resting sites within the Survey Area which includes the Proposed Solar Areas and up to 100 m from the boundary of the Proposed Solar Areas, subject to access and where suitable habitat is present. Detailed surveys were not undertaken in the Biodiversity Mitigation Areas because no development is planned there, and significant impacts on otter / otter habitat can be scoped out. Notwithstanding this, surveys of the ditches and drains as part of the habitat baseline work were undertaken in the Biodiversity Mitigation Areas. As part of this, surveyors recorded the presence of field signs for any notable species (including otter) if/where present. No direct evidence of otter use of the mitigation areas was recorded.

7.6.122 No holt sites, natal holts or other resting sites were confirmed within the Survey Area or in the Biodiversity Mitigation Areas. One otter spraint was identified on the Catchwater Drain in the north of the Site and a second spraint was recorded incidentally, outside the Survey Area, on the Catchwater Drain (upstream of the Site).

7.6.123 Mammal paths were identified across the Site during the September 2024 survey. However, these were all attributed to other mammal species using the Site, including badger and deer species. No definitive otter overland paths were recorded during the surveys.

Evaluation

7.6.124 Although the desk study returned historical records of otter from close by, very limited evidence of otter has been found on the Site and no evidence of resting sites have been located. Positive field signs are two otter spraints (one offsite and one on the Site in the north); and two freshwater mussels were found. It is possible that these had been predated by otter – the shells had been pulled onto the bank of the Catchwater Drain. However, it is also possible that grey heron was responsible for the catch and a grey heron was observed within the drain and heron footprints were present on the channel bed.

7.6.125 The Site is used by otters, but the evidence suggests that the level of use is quite low. This is in the local landscape of the Trent Valley that has a continuous presence of drains and ditches, as well as the River Trent itself which is where most of the desk study records originate.

7.6.126 Much of the Site is of limited value for otters and although most of the Site's watercourses and ditches could be used by otter, there is only limited evidence of this, and the Site is evaluated as important at the **Local level** for otters**.**

Water vole

7.6.127 **Appendix 7.9 – Otter and Water Vole Report [EN010163/APP/6.3.7]** provides detailed results, which are summarised below.

Desk study

7.6.128 The desk study returned 125 records relating to water vole and reported sightings of individuals, latrines, and burrows between 2004 and 2023. 15 of the records relate to ditches across the eastern half of the Site within the Proposed Solar Areas. An additional 14 records are within 100 m of the Site on connecting ditches and habitat typically to the south of the Proposed Solar Areas and Eastern Biodiversity Mitigation Area.

7.6.129 One previous ecological survey undertaken in support of the adjacent sand and gravel extraction planning application, dated 2005, identified a single dead water vole in the north of the Proposed Solar Areas, and a live water vole recorded along a ditch which is connected[27].

Field survey

7.6.130 Onsite watercourses and ditches that have optimal suitability for water vole account for approximately 4% of the total length; good suitability accounts for approximately 28%; and suitable but with poor cover accounts for approximately 13%. Approximately 55% of all watercourses and ditches at the Site, are of negligible suitability, including dry ditches.

7.6.131 Although there is a range of watercourses and ditches onsite with optimal, good and suitable but poor water vole habitat suitability, no confirmed water vole field signs were recorded during the surveys in 2024. Several other mammal signs were

[27] ESL Ltd. (2010). 'Ecological Baseline Update Survey, Sturton-Le-Steeple, Nottinghamshire'. [Unpublished planning application ecology survey report]

recorded – see **Appendix 7.9 – Otter and Water Vole Report [EN010163/APP/6.3.7]**.

7.6.132 Detailed surveys for water vole have not been undertaken in the Biodiversity Mitigation Areas (Eastern and Western) as there will not be any significant negative effects on potential water vole habitats and impacts can be scoped out. However, surveys of the ditches and drains as part of the habitat baseline work have been undertaken in the Biodiversity Mitigation Areas during which surveyors would record the presence of field signs for notable species (including water vole) where / if present. No direct evidence of water voles use of the mitigation areas was recorded. Where suitable habitats exist within the Biodiversity Mitigation Areas, it is reasonable to conclude that water vole activity is similar to that recorded within the targeted surveyed areas, i.e., water voles have not been recorded but are assumed to be present in very low numbers on a precautionary basis.

Evaluation

7.6.133 The desk study returned historical records of water vole within and surrounding the Site, most recently from 2023, within 100 m of the Site and 2014 from within the Site, and there are a number of suitable watercourses within the Site. However, no confirmed field evidence was identified.

7.6.134 American mink *Neovison vison* is a non-native species that has become established and now breeds throughout the United Kingdom. Mink is a significant predator of water voles and a contributory factor to the declines in water vole populations[28]. No evidence of mink was found at the Site, but the desk study returned a number of mink records including two from watercourses within the Site dated 2016 and 2019; and there were a further ten records in the search area from 2015 to 2021. It is therefore possible that the presence of American mink locally has negatively impacted water vole populations at the Site, and potentially caused extinction or reduced them to such low levels that they were not detected during the 2024 surveys.

7.6.135 Taking into account the historical records at the Site, and the suitability of some of the drains and ditches, a precautionary evaluation is made on the basis that water vole may be present at very low densities. The Site is evaluated on a precautionary basis as important at the **Site level** for water vole.

[28] Dean, M., (2021); 'Water vole field signs and habitat assessment. A practical guide to water vole surveys'. Pelagic Publishing, Exeter.

Great crested newt

7.6.136 **Appendix 7.10 - Great Crested Newt Report [EN010163/APP/6.3.7]** provides detailed results, which are summarised below.

Desk study

7.6.137 The desk study identified no records of great crested newt within the Site. The closest record was located 200 m from the Site boundary, and dated 2012. Breeding populations of great crested newt are known to be present in the wider landscape, including ponds 750 m to the north of the Site associated with West Burton Power Station.

7.6.138 The Site predominantly provides sub-optimal terrestrial habitat for great crested newt (arable fields) with a few small grassland fields, woodland, hedgerow, grassland field / drain margins and scrub present which provide some isolated pockets of suitable terrestrial habitat.

Field survey

7.6.139 Three ponds and seven wet ditches within the Site provide potential suitable breeding habitat for great crested newt (including a pond and wet ditch within the Eastern Biodiversity Mitigation Area), with up to 11 additional off-site ponds within 250 m of the Site.

7.6.140 The eDNA survey confirmed that no waterbodies within the Site are likely to support great crested newt.

7.6.141 Of the 12 off-site ponds, eDNA survey confirmed that great crested newt were likely absent from four ponds (ponds 5, 11, 12 and 21). No further survey of these ponds is considered necessary to inform this assessment.

7.6.142 A further four ponds (ponds 17, 17a, 19 and 20) were considered unlikely to support breeding great crested newt from pre-existing survey information (negative eDNA results from surveys undertaken by third parties in 2022-2023), and those data are considered to be sufficiently recent such that they can be relied upon for the purposes of this assessment.

7.6.143 The remaining four off-site ponds (ponds 6, 13, 15 and 18) were not accessible for HSI assessment or eDNA survey and no desk study information was available. A summary of the setting and distances of these ponds from the Site boundary follow:

- Pond 6: located within a private residential garden, ca. 95 m from the closest part of the Site boundary (Wheatley Road) which is within the boundary for

vehicle access purposes only. The pond is located ca.330 m from the Proposed Solar Areas (and further to areas of land being impacted by the development).

- Pond 13: located within a private residential garden, ca. 25 m from the closest part of the Site boundary (Gainsborough Road) which is within the boundary for vehicle access purposes only. The pond is located ca. 340 m from the Proposed Solar Areas (and further to areas of land being impacted by the development).
- Pond 15: located within a private residential garden ca. 240 m from the closest part of the Site boundary of the Proposed Solar Area. It is approximately 275 m from temporary ground disturbance (proposed cable routing) and approximately 300 m from the main development works.
- Pond 18: located within a private residential garden ca. 185m to the Proposed Solar Areas boundary, and ca. 200 m from areas of temporary ground disturbance (proposed cable routing). It is approximately 250 m to the next nearest works (site security fencing) and beyond this are the main solar installation works.

7.6.144 Taking the above distances and the quality of the habitat surrounding the ponds into account, there is no significant likelihood of great crested newt being present within the Site boundary. On a precautionary basis, as they are mobile species, the possibility of presence in very localised areas of the Site around Ponds 15 and 18 is not discounted.

Evaluation

7.6.145 No population of great crested newts was found to be present within any pond on the Site.

7.6.146 On the Site as a whole, there are some small pockets and narrow strips of potential terrestrial habitat including hedgerows and grassland field margins within 250 m of the un-surveyed off-site ponds, and in the case of Pond 18 two grazed pasture grassland fields. However, the majority of the Site and surrounding landscape is dominated by arable fields which are subject to intrusive agricultural pressures such as regular tilling and spraying, and which as a result offer few opportunities for great crested newts.

7.6.147 Research shows that where suitable habitat is present at a pond that supports great crested newts, the majority of a population will use terrestrial habitats within 50m of the breeding pond[29]. Further research commissioned by Natural England[30] has shown that great crested newt densities are very low over 100 m from the breeding pond and that the majority occur within 50 m of the pond. The same research found that it is inefficient to put in place any significant mitigation measures for ponds more than 250 m away from a development footprint, as most newt movements are within 250 m of breeding ponds.

7.6.148 Although the presence of great crested newt within the Site and Proposed Solar Areas cannot be entirely discounted, any potential use (if they are present in the un-surveyed ponds) is likely to be very limited and the Site is unlikely to form an important habitat resource for this species. The Site is considered on a precautionary basis to be of **Site level** importance for great crested newt.

Aquatic invertebrates

7.6.149 **Appendix 7.11 – Aquatic Invertebrate Report [EN010163/APP/6.3.7]** provides detailed results, which are summarised below.

Desk study

7.6.150 The desk study included data search for aquatic invertebrates from the local biological records centres within 2 km of the Site. Other sources such as the LBAP[31] and Nottinghamshire LWS Criteria[32] have also been reviewed to identify invertebrate species of local importance.

7.6.151 Further information on designated sites with entomological interest is provided in **Appendix 7.2 - Designated Sites [EN010163/APP/6.3.7].** In summary, a section of Mother Drain, Upper Ings LWS is within the Eastern Biodiversity Mitigation Area and the LWS citation states it supports an assemblage of locally notable aquatic invertebrate species such as water beetle *Limnebius nitidus*, and water bugs *Notonecta maculate* and *Notonecta viridis*. Thornhill Lane Drain, Littleborough LWS

[29] Jehle (2000); 'The terrestrial summer habitat of radio tracked great crested newts (Triturus cristatus and marbled newts (Triturus marmoratus)'. The Herpetological Journal 10: 137-143.
[30] Cresswell and Whitworth (2004); 'An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt'. English Nature Research Report No. 576.
[31] Nottinghamshire Biodiversity Action Group, (2020); 'Nottinghamshire Local Biodiversity Action Plan'. [Online] Available at https://nottsbag.org.uk/lbap/ [last accessed 20 November 2024].
[32] Crouch, N.C. (2018); 'Nottinghamshire LWS Handbook – Guidelines for the selection of Local Wildlife Sites in Nottinghamshire. Part 2A – Local Wildlife Sites selection criteria: species. 2nd Edition'. Nottinghamshire Biological and Geological Records Centre, Nottingham.

is located at the boundary of the Proposed Solar Areas and Eastern Biodiversity Mitigation Area and the LWS citation states it supports 25 water beetle species and five water bug species including various water beetles. The water bugs included water scorpion *Nepa cinerea* and water cricket *Velia caprai.*

Field survey

7.6.152 Surveys for aquatic invertebrates were undertaken at the Site in June 2024. There are three ditches within the Site (FD8, GD2 and HD5a) that are component parts of two LWS named as Thornhill Lane Drain, Littleborough LWS and Mother Drain, Upper Ings LWS which were designated on account of aquatic invertebrates; these ditches were included within the aquatic invertebrate work to provide a current baseline on the aquatic invertebrate species assemblages. Other wet ditches and drains across the Site were selected for aquatic invertebrate survey based on professional judgement of an experienced aquatic invertebrate ecologist was applied, the findings of the desk study and habitat survey work and considered factors such as the water levels and aquatic plant communities present: the non-LWS wet ditches / drains selected included ED5, ED11, FD5, FD1, FD8, GD2, and HD5a (refer to Figure 7.11.1 in **Appendix 7.11 - Aquatic invertebrate report [EN010163/APP/6.3.7]**).

7.6.153 Analysis of the collected samples indicate that the ditches / drains on Site that were included in the survey scope support moderately diverse assemblages of aquatic invertebrates.

7.6.154 None of the nationally near threatened, nationally scarce or Local A species that are listed on the Thornhill Lane Drain, Littleborough LWS and Mother Drain, Upper Ings LWS citations were recorded during the 2024 surveys. Several 'Local B' species were recorded in the surveyed sections of the Thornhill Lane Drain, Littleborough LWS, but none were recorded in the sections of Mother Drain, Upper Ings LWS.

7.6.155 Ditch ED8 (not designated as LWS), within the Proposed Solar Area was identified as having the highest species or taxon diversity. The other surveyed watercourses were not identified as supporting notable species or assemblages. The watercourses that are not designated as LWS did not meet the Nottinghamshire LWS selection criteria as they did not support the required number of notable invertebrate species as

specified in Criteria 1-4 of the water beetle and water bugs LWS selection criteria (Nottinghamshire Local Sites Panel, 2018)[33].

Evaluation

7.6.156 Whilst fewer notable species were recorded in the surveyed sections of Thornhill Lane Drain, Littleborough LWS and Mother Drain, Upper Ings LWS than were listed on the LWS citation, it is possible that the previously recorded notable species are still present. This is because the surveys undertaken were samples of watercourse sections, performed on one survey occasion. The watercourses were noted to provide suitable habitat conditions. The wet ditches / drains within the Site that have been designated as LWS for their aquatic invertebrate interest are evaluated as important at the **County level**.

7.6.157 The data suggests that other ditches / drains at the Site are typical of the landscape and region, and do not currently support an important assemblage of notable species. It is considered that they are of **Site level** importance.

Terrestrial invertebrates

7.6.158 NBGRC provided records for a range of terrestrial invertebrates including moths, butterflies and dragonflies, none of which related to the Site; small heath *Coenonympha pamphilus* (an SPI and LBAP species) was the only species identified that has a conservation designation. LERC provided 1,110 records of terrestrial invertebrate species with conservation designations from the last twenty years, including of 44 species of moth, three species of butterfly and one beetle; the records are all over 1 km from the Site.

7.6.159 The habitats within the Site are common and widespread in the local area and are unlikely to be of high importance for invertebrate species. The grassland pasture fields typically have a short sward height and limited floristic diversity, and pesticides are likely to be regularly applied to the arable fields. Some of the arable field margins have increased botanical diversity and are likely to be of some increased suitability for a range of invertebrate species. There are several dead trees and many large trees in hedgerows and the orchard which provide a resource of deadwood, which is likely to be a value for a range of saproxylic invertebrates. The

[33] Nottinghamshire Local Sites Panel (2018) Nottinghamshire LWS Handbook: Guidelines for the selection of Local Wildlife Sites in Nottinghamshire Part 2A – Local Wildlife Sites selection criteria: species. 2nd Edition, July 2028.

habitat features with the increased suitability for terrestrial invertebrates at the Site are likely to be retained and potential impacts can be designed out, and therefore further surveys have not been undertaken.

Evaluation

7.6.160 On the basis of that habitats for terrestrial invertebrates are largely suboptimal and are typical of those present in the local area, the Site is considered to be of **Site level** importance for terrestrial invertebrates.

Reptiles

7.6.161 The desk study returned 16 records of reptiles within the last twenty years, all of which are for grass snake *Natrix Helvetica* and dated between 2006 and 2022. The nearest record to the Site is for a juvenile grass snake recorded in 2010 on an arable field margin 500 m north. There are three grass snake records within the West Burton Power Station site, all located over 1 km from the Site. All other records are located over 1.2 km from the Site.

7.6.162 There is a historic record of adder *Vipera berus* dated 1987 from Clarborough TunnelLWS / SSSI, approximately 150 m west of the Site (but see below – it is now considered to be extinct in Nottinghamshire). Historic records of slow worm *Anguis fragilis* were provided from 1993 from North Leverton; the precise location was not provided but the village is adjacent to the Site's southern boundary.

7.6.163 The arable and grassland pasture fields at the Site have a low level of suitability for reptiles due to the lack of favourable habitat structure / cover and likely low levels of prey items, as well as levels of disturbance from agricultural management. The grassland field margins, railway embankments, watercourse embankments, hedgerow bases, ponds and the edges of the woodland and dense scrub are more suitable for reptiles and provide vegetation cover and opportunities for basking. Some of these habitats are well-connected to off-site habitats with high suitability for reptiles such as the railway line and River Trent corridor.

7.6.164 No field survey for reptiles has been undertaken at the Site as part of this assessment (the need to survey was discounted and agreed with PINS through the scoping process – this was on the basis that habitat that is suitable for reptiles will largely be retained, with no significant negative impacts expected, refer to **Appendix 1.2 – EIA Scoping Opinion [EN010163/APP/6.3.1]).** Incidental records of reptiles during field survey for other ecology features were collected and low numbers of grass snake were observed at the Site, including:

- Two adult grass snakes observed on 30 April 2024 basking separately along hedgerow margins in the Eastern Biodiversity Area.
- One adult grass snake briefly observed on 13 August 2024 along a hedgerow margin centrally in the Proposed Solar Areas.

7.6.165 The riparian vegetation along watercourses at the Site are the most suitable habitat for grass snake, offering opportunities for hunting amphibians and providing habitat connectivity through the landscape, but this species will also use hedgerow bases and the associated grassland margins for commuting.

7.6.166 Other reptile species that are present in Nottinghamshire such as slow worm and common lizard *Zootoca vivipara* may be present in suitable habitats at the Site, but if present are likely to be found only in low densities because of the relatively small total amount of optimal habitat. Adder is unlikely to be present at the Site, as this species is now considered to be extinct within Nottinghamshire[34].

Evaluation

7.6.167 Grass snake has been recorded on the Site and on the basis that habitats for reptiles are largely suboptimal and that any reptile populations are most likely to be at low densities, the Site is considered on a precautionary basis to be of **Site level** importance for reptile species.

Fish

7.6.168 The desk study returned seven records of European eel *Anguilla Anguilla* within the Site dated 2012 to 2023; four records were at Catchwater Drain within the Proposed Solar Areas, two at Mother Drain in the Eastern Biodiversity Mitigation Area, and one at drain ED10 that runs parallel to Littleborough Road in the Proposed Solar Area. Further records of eel were returned for Catchwater Drain adjacent to the Site boundary and to the north close to the River Trent and the Mother Drain to the north and south of the Site. Records of eel were also returned over 1 km from the Site for other drains that connect into the River Trent. There are two records of bullhead *Cottus gobio* within the search area; one is within the Site in Catchwater Drain in the north of the Proposed Solar Areas dated 2012, and the second is associated with Wheatley Beck dated 2013, which is 1.1 km north of the Site. European eel is an SPI and local BAP priority species; bullhead is a local BAP priority species. It was

[34] Worthington-Hill, J. (2016). 'Reintroduction of the adder Vipera berus to Nottinghamshire: a feasibility study'. People's Trust for Endangered Species and Nottinghamshire Wildlife Trust

assessed for The IUCN Red List of Threatened Species in 2023 as being of Least Concern.

7.6.169 Within the Site, there are shallow flowing watercourses suitable for fish such as Mother Drain and Catchwater Drain, and a network of unnamed wet ditches. Littleborough Lagoon is a large, permanent waterbody of unknown depth in the Eastern Biodiversity Mitigation Area adjacent to the River Trent, which floods into the lagoon; it is likely that the lagoon supports a range of fish species, including species that are present in the river. The smaller ponds elsewhere in the Site are isolated, and often ephemeral and are therefore unlikely to support fish.

7.6.170 The habitat features with increased suitability for fish at the Site have been retained and potential impacts have been designed out. Additionally PINS did not request fish surveys in their Scoping Response. Fish surveys have therefore not been undertaken.

Evaluation

7.6.171 Given the presence of suitable habitats and desk study records at the Site, the presence of European eel and bullhead is assumed within the main drains and their tributaries where suitable conditions are present. Similar drains and wet ditches supporting other fish species are likely to be present locally along the River Trent corridor, and on a precautionary basis the assumed fish population at the Site is likely to be of **Local level** importance.

Dormouse

7.6.172 In the EIA Scoping Report (see **Appendix 1.1 – EIA Scoping Report [EN010163/APP/6.3.1]**) it was concluded that the Site has poor habitat connectivity to known dormouse populations, which were extinct in the county until reintroduction attempts in three woodlands in the 1990s and 2000s[35]. The closest such woodland is 2.6 km south (Treswell Woods).

7.6.173 Monitoring by the Nottinghamshire Dormouse Group suggests that populations of dormice in the dormouse-release woodlands are now relatively stable, and work in the 2020s shows some evidence of modest dispersal to other suitable woodland habitats nearby that have good habitat connectivity with the reintroduction sites.

[35] Nottinghamshire Dormouse Group, (2020); 'Nottinghamshire's Dormice'. [Online] Available at https://nottsdormousegroup.uk/nottinghamshires-dormice/ [last accessed 20 November 2024].

7.6.174 Habitat connectivity between Treswell Woods and existing dormouse populations is suboptimal – examination of aerial photography shows several intervening minor roads, a minor watercourse and a railway line. Many of the hedges appear to be low and tightly mown which is less favourable for dormice.

7.6.175 Habitats at the Site are sub-optimal for dormouse due to the low cover of suitable woodland habitats, and the unfavourable management of the hedgerows.

7.6.176 Given the distance of Treswell Woods, the intervening habitat quality and the condition of hedgerows on the Site, dormouse are considered to be absent. Further information has been sought from Nottinghamshire Wildlife Trust and their dormouse group representative (see Appendix 4) regarding dormouse dispersal from Treswell Woods. It is understood from the consultation work with dormouse group, that for the purposes of Nottinghamshire Local Nature Recovery Strategy (currently unpublished), the dormouse group has applied a 2.5 km radius around the dormouse re-introduction woodlands on a precautionary basis as the dispersal distances are not fully understood.

7.6.177 As the Proposed Development site is located over 2.6 km from Treswell Woods, with poor habitat connectivity, dormouse are assumed to be absent but with potential to colonise the Site as time passes. This approach has been agreed in principle with Nottinghamshire County Council and Bassetlaw District Council (see Appendix 4). Dormouse are not evaluated at this stage.

Other SPI animals

7.6.178 Other animals that are SPI and Species of Conservation Concern in the Nottinghamshire BAP, and that are potentially present (or have been confirmed) at the Site include common toad *Bufo bufo,* brown hare *Lepus europaeus,* hedgehog *Erinaceus europaeus*, harvest mouse *Micromys minutus* and polecat *Mustela putorius*. Field surveys specifically for these species have not been undertaken, and are not proposed, but where observed during field surveys for other ecology features, they have been recorded as incidental records.

7.6.179 There are desk study records of common toad at Littleborough Lagoon and, further off-site, records at Out Ings LWS and West Burton Power Station, both over 600 m to the north. Common toad may use on-site waterbodies and wet ditches for breeding; and grassland field margins, scrub and hedgerow for foraging and shelter throughout the year. It is assumed that common toad is present within suitable waterbodies and associated terrestrial habitats at the Site, which are relatively

restricted. On the basis that other suitable breeding and terrestrial habitat for common toad is present across the local area and the Site itself does not have many breeding opportunities and is low in cover of terrestrial habitat, common toad is assessed on a precautionary basis as likely to be important at the **Site level**.

7.6.180 There are nine desk study records of brown hare from within the Proposed Solar Areas and Eastern Biodiversity Mitigation Area, and there are further off-site records that are widespread in the local area. Brown hare has been regularly recorded within the Site, typically within arable fields and on grassland field margins, and it is assumed to be widespread and present within suitable habitats in the locality. Suitable habitats for brown hare are well-represented in the local area, and the species is likely to be widespread locally. Ona precautionary basis the Site is assessed as being of importance at the **Local level.**

7.6.181 One record of hedgehog was returned from within the Site during the desk study; this was associated with a hedgerow in the Proposed Solar Areas. Further hedgehog records are widespread around the Site, typically associated with villages and as road-casualties. Within the Site, suitable habitat for hedgehogs is present along hedgerows and the grassland field margins, scrub, woodland and grassland margins of the watercourses, as these would likely provide foraging and shelter opportunities. It is assumed that hedgehog is present within suitable habitats at the Site. Other suitable habitat for hedgehog is present within the local area, and the species is likely to be widespread, although the Site is relatively large. On a precautionary basis the Site is considered to be of **Local level** importance for hedgehog.

7.6.182 Three records of harvest mouse were returned during the desk study, none of which relate to the Site. The nearest record is 750 m east of the Site, near to Gate Burton. There is suitable habitat for harvest mouse at the Site in hedgerows, woodland, scrub, and in grassland areas alongside watercourses and arable field margins where the grassland is taller and less regularly managed. It is assumed that harvest mouse is present within suitable habitats at the Site. Other suitable habitat for harvest mouse is likely to be present within the local area. On a precautionary basis the Site is considered to be of **Local level** importance

7.6.183 Two records of polecat were returned during the desk study, none of which relate to the Site. The nearest record is 1km north of the Site, near to North Wheatley. Within the Site, suitable habitat for polecat is present along hedgerows and the

grassland field margins, scrub, woodland and grassland margins of the watercourses, as these would be likely to provide hunting and shelter opportunities. Similar habitat for polecat is present within the local area and the Site is considered likely to be of but on a precautionary basis the Site is assessed as being of **Local level** importance for polecat.

Ecological evaluation summary

7.6.184 **Table 7.3** summarises the ecological evaluation of the current baseline conditions, and identifies the important ecological features based upon the available survey information at this time. All ecological features considered to be important will be carried through to assessment of effects.

Table 7.3 - Summary of ecological evaluation

Ecological feature	Evaluation	Important ecological feature
All SPA, SAC, Ramsar designated sites within the desk study area	International	Yes
All SSSI designated sites within the desk study area	National	Yes
LWS within and adjacent the Site within 100m	County	Yes
All other LWS within the desk study area	County	No
HPI habitats at the Site	Local	Yes
Non-HPI habitats at the Site	Site	No
Breeding birds: general assemblage	Local	Yes
Breeding birds: skylark	District	Yes
Barn owl	Local	Yes
Wintering bird assemblage	Local	Yes
Bats	Local	Yes
Badger	Not evaluated - protected for welfare; not of nature conservation concern	No
Otter	Local	Yes
Water vole	Site (precautionary) but is a protected species	Yes
Great crested newt	Site (precautionary) but is a protected species	Yes
Aquatic invertebrates	County (LWSs drains only; other non-LWS watercourses evaluated as important at Site level)	Yes
Terrestrial invertebrates	Site	No
Reptiles	Site (precautionary) but are protected species	No

Ecological feature	Evaluation	Important ecological feature
Fish	Local (precautionary)	Yes
Dormouse	Assumed absent at this time so not evaluated. May colonise in due course so treated on precautionary basis as potentially important future feature.	Yes
Other SPI animals	Local (precautionary)	Yes
Invasive species	N/A	N/A

7.7 Embedded Mitigation

7.7.1 Ecological input has been provided throughout the evolution of the Proposed Development by BSG Ecology. This input has contributed to a range of 'designed-in' primary ecological mitigation, compensation and enhancement measures that are part of the design of the Proposed Development. Biodiversity features have been considered iteratively as the detail of the Proposed Development has evolved, and the incorporated biodiversity measures form an integral part of the Proposed Development, designed specifically to avoid or reduce biodiversity effects wherever possible, and to build biodiversity enhancement into the Proposed Development.

7.7.2 The principal embedded measure is the retention / enhancement of key habitats *in situ*, informed by early surveys of the Site. Building in the retention of key habitats by limiting or targeting the extent of development addresses the first step (avoidance) in the mitigation hierarchy as explained in Natural Environment Guidance.[36] [37]

Summary of embedded mitigation measures

- Within the Proposed Solar Areas, priority habitats (such as hedgerows, trees, arable field margins, woodland, watercourses, ponds and scrub) will be

[36] Ministry of Housing, Communities, and Local Government (2016) Natural Environment Guidance [online] available at: https://www.gov.uk/guidance/natural-environment [last accessed 7th November 2024].

[37] **Avoidance**: Can significant harm to wildlife species and habitats be avoided; for example by locating on an alternative site with less harmful impacts? **Mitigation**: Where significant harm cannot be wholly or partially avoided, can it be minimised by design or by the use of effective mitigation measures that can be secured by, for example, conditions or planning obligations? **Compensation** Where, despite mitigation, there would still be significant residual harm, as a last resort, can this be properly compensated for by measures to provide for an equivalent or greater value of biodiversity?

retained and incorporated into semi-natural habitat buffers. A schedule of proposed buffers to these habitats is provided in Appendix 1 of this chapter. This will retain habitat for protected / notable species, and ensure retention of habitat connectivity through the Proposed Development and the local landscape.

- Arable habitats where the solar arrays will be placed will be converted to modified grassland. Field margins around the solar arrays will be retained / created to neutral grassland with appropriate wildflower mixes used if necessary to increase floristic diversity.
- Clarborough Tunnel SSSI is adjacent to the Site's southern boundary and the part of the Site adjoining the SSSI will be excluded from development and incorporated into the Western Biodiversity Mitigation Area for enhancement to species-rich grassland. This creates / enhances existing habitats that would complement the SSSI and improve ecological connectivity.
- Buildings and trees with bat and barn owl suitability will be retained, thereby avoiding direct impacts upon potential bat roosts.
- All badger setts will be retained, with the majority within a suitable buffer during construction, operation and decommissioning phases.
- Protective fencing will be installed around sensitive important ecological features.
- Mammal gaps will be incorporated into security fencing within the Proposed Solar Areas to allow access by badger and other SPI mammals.
- Directional drilling will be employed for cabling beneath watercourses and hedgerows during construction, to avoid damage to linear habitats.

7.7.3 In addition to the embedded measures that are summarised above, the impact assessment (set out in Section 7.8) gives rise to a series of further measures (both mitigation and enhancement). These are summarised below for convenience.

Additional mitigation, the detail of which will be informed by the final design layout and construction programme:

- Where access crossing points on ditches / drains are required, these will be clear span structures unless otherwise stated.
- Production of an appropriate lighting strategy for all phases of development.
- Standard measures for pollution prevention and dust management incorporated into **Appendix 4.1 - Outline Construction Environmental Management Plan [EN010163/APP/6.3.4]** and the **Appendix 4.2 - Outline Decommissioning Plan [EN010163/APP/6.3.4]** for the construction and decommissioning phase.

- Appropriate timing of certain works to avoid impacts on features, for example favouring vegetation clearance outside of the bird nesting period.
- Precautionary methods of working to avoid disturbance, damage, killing / injury, such as precautionary vegetation clearance methods in areas suitable for reptiles.
- Securing and implementing protected species licences, such as for badgers, where impacts to avoid an offence under the relevant legislation cannot be avoided.
- Precautionary pre-works checks for great crested newt on suitable terrestrial habitat being impacted within 250 m of Ponds 15 and 18. However, there is no likelihood of an offence in respect of great crested newts anticipated nor of a licence being required.
- Measures in the Western and Eastern Biodiversity Mitigation Areas that will mitigate impacts on ground nesting birds, primarily skylark.

Enhancement measures

- Habitat creation in the Eastern Biodiversity Mitigation Area, will include wildflower grassland, species-rich hedgerows, scrub, ponds and ditches.
- Habitat improvements such as infilling of gaps in hedgerows, and improvements to plant species diversity by additional planting / seeding in retained habitats.
- Improved management of retained habitats, such as grasslands within the LWS within the Site, management of hedgerows to favour breeding birds and to increase their potential for dormouse, and management of woodlands to improve their biodiversity value.
- Installation of other wildlife features such as bat and bird boxes.

7.7.4 Details of work necessary to retain, create and manage retained and new ecological features during and after construction are provided in **Appendix 4.1 - Outline Construction Environmental Management Plan [EN010163/APP/6.3.4]**, the **Appendix 4.2 - Outline Decommissioning Statement [EN010163/APP/6.3.4]**, and **Appendix 7.14 Outline Landscape Ecological Management Plan [EN010163/APP/6.3.7]** for the Proposed Development.

7.8 Assessment of Likely Significant Effects

7.8.1 This section considers the potential effects of the Proposed Development on the identified important ecological features (i.e., designated sites, habitats and species). Impacts are assessed in the absence of mitigation (but taking into account

any designed-in mitigation – above). Appendix 2 is a table that presents a summary of the Zones of Influence for the various ecology features.

7.8.2 Residual effects are then described for each ecological feature that is considered, taking into account the measures designed into the development and any further mitigation, compensation or enhancement measures that would be secured by way of Requirements for DCO or other appropriate agreement.

7.8.3 The following types of impacts have been identified as potentially occurring during the three phases (construction, operation and decommissioning) of the Proposed Development and may result in significant effects (either adverse or beneficial). Potential impacts are considered at each of the three phases.

7.8.4 Because of the number of receptors that are assessed, each ecological receptor in this chapter of the ES is assessed to provide the 'assessment of effects', mitigation and enhancement' and then 'residual effects' together to keep the chapter more succinct and for ease of reading.

7.8.5 All further mitigation measures that are relevant to the construction and decommissioning phases of development are included in the **Appendix 4.1 - Outline Construction Environmental Management Plan [EN010163/APP/6.3.4]**), and in the Appendix 4.2 - **Outline Decommissioning Plan [EN010163/APP/6.3.4]**. Creation and management of new habitat and enhancement / management of retained habitat are included in the **Appendix 7.14 - Outline Landscape Ecological Management Plan [EN010163/APP/6.3.7]**.

Construction

7.8.6 Impacts that may occur during construction are likely to include:

- Habitat loss. Agricultural land (arable and grassland pasture) which will be cleared for the footprint of the Proposed Development. Some minor loss of hedgerow and grassland field margins is likely to occur.
- Habitat gains. Conversion of areas of arable land underneath solar arrays to permanent grassland. Habitat creation or enhancement elsewhere such as woodland and hedgerows.
- Temporary habitat loss / disturbance. Arable farmland with crops to be cleared for construction activities (e.g., laydown areas and compounds). Hedgerow and field margins where underground cable routes cross (using cut and cover or other measures not including horizontal directional drilling).

- Habitat damage / degradation. Direct and indirect damage (temporary or permanent) to retained features such as trees, and hedgerows adjacent to works, from soil compaction or damage from vehicles.
- Disturbance of species within the Site and in retained habitats adjacent to the Site, from noise, light, vibration and the presence of vehicles and people.
- Damage, destruction, killing or injuring of ecology features such as badger setts and active bird nests.
- Contamination / pollution. Potential ground, water and air pollution from spillages, dust and vehicles.

Operational

- Fragmentation of habitats and species populations. Indirect impacts of the Proposed Development causing barrier effects to certain species such as from security fencing or installation of built infrastructure.
- Disturbance of species within the Site and in retained habitats adjacent to the Site, from noise, light and the presence of vehicles and people.
- Changes to foraging and commuting behaviours. Installation of solar arrays could result in avoidance / attraction by bats, birds, and invertebrate species.
- Beneficial effects from increased habitat diversity and reduction of pesticide application as the Site transitions from intensive arable management to less intensive grazing. This would benefit a range of invertebrate species and other species that prey upon them (i.e., bats, birds).

Decommissioning

7.8.7 The **Appendix 4.2 - Outline Decommissioning Plan [EN010163/APP/6.3.4]**sets out the approach to decommissioning. It sets out the site management measures that will be worked up to ensure normal best practices are in place to minimise environmental impacts at the decommissioning stage.

7.8.8 The fields will be handed back to the landowners, once all infrastructure has been decommissioned, as grassland for continued agricultural use. It is not possible to predict the future agricultural use, and any post-development habitat impacts brought about by the landowner modifying or removing or creating different habitats is similarly not predictable at this stage.

7.8.9 Notwithstanding the above, some impacts are predictable to a point, and these are set out in the **Appendix 4.2 - Outline Decommissioning Plan [EN010163/APP/6.3.4]**. They include (in summary):

- All above ground infrastructure will be carefully removed in accordance with the procedures and controls set out in the Decommissioning Plan (DP).
- Foundations and other below-ground infrastructure, which are not practicable to remove without major disturbance, will be cut to 1m below the surface. If any piles are used in construction, these will be removed at this stage.
- Whether or not the 400kV and 132kV cables are removed is dependent on the perceived environmental impact of this at the time, and they could be left *in situ*. It is likely that cables will be removed where possible, for recycling purposes and to leave the land as close to its previous state as possible. To minimise surface disturbance, cables would be removed from the ducts without the subsequent removal of the ducts themselves.
- Soil sourced on the Site, or supplemented by imported soil where required, will be used to backfill all excavations, using appropriate soil management techniques. Some soil profiling may be required, and the land will be contoured.
- The soil resource within the Order Limits will be managed through construction, operation, and decommissioning phases to enable restoration of the land to its pre-construction condition at the end of operation, should this be required.
- Primary access tracks will be retained where requested by landowners. Permissive paths will be managed up to decommissioning, with the timing of their removal, if required, to be confirmed within the DP.

7.8.10 Removal of solar panels and associated infrastructure will cause temporary habitat disturbance (primarily of permanent grassland) as well as disturbance of some of the fauna that is similar in nature to those arising during the construction phase.

7.8.11 The degree to which hedges will be impacted is not known at this stage but it is likely that hedge disturbance / loss will be minimal and movement around the Site will make use of gaps and openings that are already in place at that time. Similarly,

watercourse crossings will already be in place so no further physical impacts on watercourses would be likely to arise.

7.8.12 This means that the extent or magnitude of such impacts is likely to be lower than during the construction phase.

7.8.13 At the time of decommissioning the Site will support a modified range of habitats. The range of species is also likely to also change.. At this stage it is not possible to predict with any degree of accuracy what the post-operational biodiversity interest will be, or the extent to which it will be affected by decommissioning activities.

7.8.14 It is not anticipated that there will be any adverse effects on the two biodiversity mitigation areas during the decommissioning phase as there is no infrastructure to remove. Other biodiversity enhancement and compensation measures such as bat and bird boxes would be left *in-situ*.

7.8.15 Post-construction ecological monitoring is set out in **Appendix 7.14 Outline Landscape Ecological Management Plan [EN010163/APP/6.3.7])** and this will inform decommissioning by providing updates to the Site's ecological baseline and allow an updated assessment of effects on the post-operational biodiversity baseline.

Statutory Designated sites

Construction phase impacts

7.8.16 Due the nature of the Proposed Development and its separation from internationally designated sites, direct impacts for example as a result of land-take will not arise. Indirect impacts from lighting or from pollution, are also unlikely to arise.

7.8.17 The breeding and wintering bird surveys undertaken in 2023 / 24 have not identified any significant activity at the Site from qualifying bird species of SPA and Ramsar sites. The assessment is that given the separation distance to these sites, the Site is not functionally linked to the internationally designated sites, i.e., it is not likely to provide an important role in maintaining or restoring the population of qualifying species at favourable conservation status. It is therefore not likely that significant adverse impacts on the bird interest of international designated sites arising from habitat modification or loss, or the introduction of a solar development arise any phase of the Proposed Development.

7.8.18 In addition to bird interests, no likely significant effects on other qualifying species of Ramsar or SAC sites have been identified, primarily due to the separation distance between the designated sites and the Site.

7.8.19 Clarborough Tunnel SSSI is adjacent to the Site's southern boundary and the part of the Site adjoining the SSSI has been identified for enhancement to species-rich grassland as part of the designed-in measures. The nearest area of development is over 750 m from the SSSI. Due to the nature of the Proposed Development and the separating distance from any areas of development within the Site, no direct or indirect impacts on the interest of Clarborough Tunnel SSSI are anticipated. ES **Chapter 14 - Air Quality [EN010163/APP/6.3.4]** provides additional information on potential impact pathways regarding construction dust and traffic to Clarborough Tunnel SSSI, and also concludes that there will be no likely direct or indirect impacts.

7.8.20 All other nationally designated sites are over 1.6 km from the Site, and there would be **no direct or indirect impacts** upon them.

Operation phase impacts

7.8.21 Because of the separation between the Site and all non-statutory designated sites, further significant adverse impacts are not expected to arise during the operational phase. The operational phase impact will be neutral (not significant).

Decommissioning phase impacts

7.8.22 Due the nature of the Proposed Development and its separation from internationally designated sites, direct impacts will not arise. Indirect impacts from lighting or from pollution, are also unlikely to arise.

7.8.23 The Site is not considered to be functionally linked to internationally designated sites and decommissioning activities are not likely to give rise to a significant adverse impact on the interest features of international designated sites arising from habitat modification or loss.

7.8.24 Due to the nature of the Proposed Development and the separating distance from any areas of development within the Site, no direct or indirect impacts on the interest of Clarborough Tunnel SSSI are anticipated.

7.8.25 All other nationally designated sites are over 1.6 km from the Site, and there would be **no direct or indirect impacts** upon them.

Residual effects

7.8.26 Taking into account the lack of significant effect at any phase on statutory designated sites, the residual effect is assessed as **neutral, not-significant**.

Non-statutory designated sites

Construction phase impacts

7.8.27 There are five non-statutory designated LWS either wholly or partially within the Site, and two within 100 m, to the north and the south-west of the Site. These include terrestrial and wetland habitats. No direct impacts in terms of habitat loss are anticipated as these will be retained and buffered by an appropriate stand-off where they are within or adjacent to development areas, as part of the embedded measures of the Proposed Development.

7.8.28 The two watercourses at the Site that are designated as LWSs on account of their aquatic invertebrate interest (Thornhill Lane Drain, Littleborough LWS and Mother Drain, Upper Ings LWS) are to be retained and incorporated into semi-natural habitat buffers. There are no access crossings to these LWSs as part of designed-in measures to prevent physical damage. In the absence of further mitigation measures, there is a risk of accidental pollution or soil sediment discharge into these watercourses which could cause adverse effects on aquatic invertebrates for which they are designated.

7.8.29 High House Road Verges LWS is an area of species-rich grassland that is located along a road on the boundary of the Proposed Solar Areas and is to be retained and incorporated into a semi-natural habitat buffer. A vehicle access point for use during construction and operation is proposed which will cross the southern verge of the LWS; this will replace an existing farm access. The existing track where it crosses the LWS is already bare and compacted ground, and therefore the replacement access will not result in significant loss of grassland for which the LWS is designated. Nonetheless in the absence of further mitigation during the construction phase, construction traffic could give rise to some (either because of widening or accidental overrun), and there may be additional dust deposition, which may result in degradation of the grassland.

7.8.30 The other two LWS within the Site (Blue Stocking Lane, Clarborough LWS, Littleborough Lagoon LWS) are in the Eastern and Western Biodiversity Areas where no development is proposed. They will be retained and no adverse effects from the construction phase are anticipated.

7.8.31 West Burton Meadow LWS is off-site but adjacent to the northern boundary of the Proposed Solar Areas. No direct impacts are anticipated. In the absence of mitigation, indirect effects from vehicles movements during construction (dust, emissions) could occur.

7.8.32 Clarborough Tunnel LWS is a composite part of Clarborough Tunnel SSSI and is within 100 m of the Site boundary but over 750 m from any construction works. Due to the nature of the Proposed Development and the separating distance from any areas of development within the Site, no direct or indirect impacts on the interest of Clarborough Tunnel LWS are anticipated.

7.8.33 In the absence of further mitigation, the development could impact West Burton Meadow LWS, High House Road Verges LWS, Thornhill Lane Drain, Littleborough LWS and Mother Drain, Upper Ings LWS such that the ecological features that are reasons for their designation are compromised. **Potential adverse impacts on non-statutory designated sites may be significant at up to County level.**

Operation phase impacts

7.8.34 Further significant adverse effects are not expected to occur to non-statutory designated sites during the operational phase.

7.8.35 The changes in land management, and the reduction of agricultural chemical use and run-off into watercourses and waterbodies will benefit the non-statutory designated sites that are hydrologically connected to the Site. The significance of this long-term beneficial impact is difficult to assess with certainty but it would be at least **Site level.**

Decommissioning phase impacts

7.8.36 No direct impacts are anticipated – LWSs will be retained and buffered by an appropriate stand-off where they are within or adjacent to development areas, as part of the embedded measures of the Proposed Development.

7.8.37 The two watercourse LWSs, in the absence of further mitigation measures, have a risk of accidental pollution or soil sediment discharge during decommissioning which could cause adverse effects on the aquatic invertebrates for which they are designated.

7.8.38 The vehicle access point across High House Road Verges LWS could, in the absence of further mitigation, be subject to widening or accidental overrun by vehicles), and

there may be additional dust deposition, which may result in degradation of the grassland.

7.8.39 Blue Stocking Lane, Clarborough LWS, and Littleborough Lagoon LWS, are in the Eastern and Western Biodiversity Areas where no development is proposed. They will be retained and no adverse effects are anticipated.

7.8.40 West Burton Meadow LWS is off-site but adjacent to the northern boundary of the Proposed Solar Areas. No direct impacts are anticipated but in the absence of mitigation indirect effects from vehicles movements during construction (dust, emissions) could occur.

7.8.41 In the absence of further mitigation, the development could impact West Burton Meadow LWS, High House Road Verges LWS, Thornhill Lane Drain, Littleborough LWS and Mother Drain, Upper Ings LWS such that the ecological features that are reasons for their designation are compromised. It is possible that adverse impacts on non-statutory designated sites could arise, **which may potentially be significant at up to County level.** However, this is difficult to predict with certainty at this stage.

Mitigation and enhancement

7.8.42 Potential adverse impacts from pollution incidents and soil sediment discharge during construction and decommissioning will be avoided by implementing standard measures for pollution prevention, dust suppression and soil erosion and run-off during the construction and decommissioning phases. Measures such as fencing and toolbox talk briefings will be implemented during the construction and decommissioning phases to prevent accidental damage to non-statutory sites such as by encroachment of vehicles (such as at High House Road Verges LWS is crossed for access). This would be overseen by an Ecological Clerk of Works (ECoW). These measures are in **Appendix 4.1 - Outline Construction Environmental Management Plan [EN010163/APP/6.3.4]** and **Appendix 4.2 - Outline Decommissioning Plan [EN010163/APP/6.3.4].**.

7.8.43 Habitat enhancement within the Eastern and Western Biodiversity Mitigation Areas will include measures that complement the interest of designated sites within and adjacent to the Site. The measures will include enhancement of arable, arable field margins, watercourses, standing water, flood-plain grassland, hedgerows and other habitats. Further areas of wetland, species-rich grassland, woodland and

hedgerows will be created adjacent to LWSs which will provide further enhancement.

Residual effects

7.8.44 Taking into account all of the construction phase mitigation as well as the extent of operational phase habitat creation and enhancement measures that will benefit LWSs within and adjacent the Site, and the reduction in agricultural run-off into watercourses, it is considered that there will be **beneficial effects on non-statutory designated sites over the period of the Proposed Development, significant at the Site level**.

Habitats

Construction phase impacts

7.8.45 The Proposed Development will be located on arable fields and grassland pasture fields, with notable habitats (HPIs) largely retained and incorporated into semi-natural habitat buffers. Mature trees, including those that have 'veteran' features, orchards and woodlands will be retained and protected in appropriate semi-natural habitat buffers that are informed by root protection area recommendations from the arboricultural consultants. The schedule of proposed ecological buffers forming part of the Proposed Development is shown in Appendix 1 to this chapter and further details are presented in **Appendix 4.1 - Outline Construction Environmental Management Plan [EN010163/APP/6.3.4]**).

7.8.46 Within the Proposed Solar Areas, all arable fields will be replaced by permanent grassland over the 24-month construction programme. Arable land within the Proposed Solar Areas will be replaced with other habitats such as permanent modified grassland, which will be managed through sheep grazing or mowing. In addition to the loss of arable land, there will be some modified pasture grassland loss to install the footings of the solar array frames, access routes and the BESS with associated infrastructure. Where arable and modified grassland are replaced with hardstanding, this would represent a minor loss in terms of ecological value.

7.8.47 The hedgerow network will largely be retained. Loss of hedgerow and arable field margin HPIs has been minimised by using existing access gaps (such as field gateways) where practical. Construction will result in the loss of small sections of native hedgerow to facilitate vehicle access through widening of existing farm access points and visibility splay requirements. Where cables cross through hedgerows and cannot be routed through existing gaps, temporary hedgerow loss

followed by replacement will take place. Approximately 1 km of hedgerow will be lost (or temporarily lost then reinstated) from a total of 69.74 km (approximately 1.5 %).

7.8.48 Hedgerows identified as 'important' under the wildlife criteria in the Hedgerow Regulations 1997 will be largely retained – 58 m of hedgerows important under the wildlife criteria will be lost from a total of 4,415 m (approximately 1.2 %). The 58 m loss is from: a 20 m length of 'important' hedgerows along Wood Lane for a vehicle access point and turning area, affecting hedgerows AH35 and AH36; and 35m and 3m stretch of hedgerow AH21, along Wood Lane, to allow the lane to be widened and enable a cable crossing. All other hedgerows that qualify as important under the wildlife and landscape criteria of the Hedgerow Regulations 1997 will be retained. The **Figure 6.9 Outline Landscape Mitigation Strategy [EN010163/APP/6.4.6]** shows that 53m of the 58 m of removed important hedgerow will be relocated/translocated short distances to minimise total loss.

7.8.49 There will be small losses of HPI arable field margins to facilitate vehicle access . Cable installation will typically be cut and cover (unless otherwise stated) and therefore habitat impacts will be temporary. Retained areas of arable field margins will be protected during construction through implementation of semi-natural habitat buffers and fencing which is outlined in **Appendix 4.1 - Outline Construction Environmental Management Plan [EN010163/APP/6.3.4])**.

7.8.50 Physical impacts to watercourses will be avoided by design, through the creation of semi-natural buffers and horizontal directional drilling will be used for cabling beneath watercourses during construction. A total of 32 ditch and river crossings have been identified during the preliminary infrastructure design. Of these, 16 relate to ditches that are considered to be 'dry' in ecological terms, i.e. are dry for at least eight months of the year.

7.8.51 The proposed crossings of dry ditches are typically at locations where culverted sections and farm tracks already exist, and these will be replaced with new culverted crossings as part of the Proposed Development. The 16 culverted crossings across wet ditches / watercourse include:

- One is an existing road bridge where Common Lane crosses the Catchwater Drain. This may have minor upgrades to improve its strength for construction vehicles if abnormal loads are to use the crossing (not currently anticipated).

- Two new clear-span pedestrian footbridges on the un-named watercourses DD8 and CD1(D).
- Two are existing culverts on the un-named watercourse DD8 that will be removed and replaced with new clear-span vehicle bridges.
- Three new culverts on seasonally wet ditches DD6, ED1 and ED2. All three ditches are noted to be dry during the summer and support shallow water (c. 6cm deep) at other times. Ditch DD6 is isolated in the landscape and poorly connected to other watercourses.
- Eight are existing culverts on wet ditches DD1, DD3, ED8, ED11, FD1, FD2, FD7, and FD9 which will be upgraded. This will involve removing and replacing the culvert pipes with the same or greater flow capacity.

7.8.52 . In the absence of further mitigation measures, there is a risk of damage to adjacent watercourse habitats and accidental pollution or sediment discharge into retained watercourses which could cause adverse effects to retained watercourses.

7.8.53 Habitats within the Eastern and Western Biodiversity Mitigation Areas will be used for delivering biodiversity mitigation, and are not anticipated to be negatively impacted by the Proposed Development.

7.8.54 In the absence of further mitigation there is the potential for retained habitats on and immediately offsite being damaged during the construction phase, such as via physical damage, soil compact, dust or pollution spills; such impacts are likely to be to be **adverse, and significant at the Site level**.

Operation phase impacts

7.8.55 Improved management during the operational phase of retained and created habitats, such as hedgerows and woodland within the Proposed Solar Areas, are anticipated to result in beneficial effects given the size of the Site and the potential for locally important improved habitat connectivity.

7.8.56 The ditch / watercourse crossings will not result in fragmentation or reduction to flows as they will either be clear-span crossings, replacement of existing culverts with pipes of the same or increased flow capacity, or where new culverts are proposed, these will be on ditches that are seasonally wet.

7.8.57 As habitats develop and mature during the operational phase, landscape-scale habitat connectivity improvements would be expected, for instance through the

creation of larger, more diverse grassland field margins and watercourse margins across the ca. 888 ha of the Site.

7.8.58 Over the life of the Proposed Development, the impact of habitat creation and management will be **Beneficial, and significant at Site Level**.

Decommissioning phase impacts

7.8.59 At the decommissioning phase some habitats may be returned to arable land or more intensively grazed land. However, this adverse effect is likely to represent only a return to the pre-development baseline conditions if/where it takes place.

7.8.60 Any small-scale vegetation removal required to facilitate the decommissioning of the Proposed Development would be of very limited significance although the extent and thus the significance is not known at this stage.

7.8.61 There is the potential risk that, at the decommissioning stage, accidental damage to retained habitats might occur. Measures to reduce the risk of accidental encroachment by vehicles and operatives are set out in the **Appendix 4.2 Outline Decommissioning Plan [EN010163/APP/6.3.4]**. With these measures in place, any accidental encroachment will be avoided or at worst have a slight adverse impact.

7.8.62 Watercourse impacts are not currently anticipated during decommissioning phase as no works within aquatic habitats are proposed – buffers will already be in place, and standard measures to prevent watercourse pollution occurring will be put in place through implementation of the **Appendix 4.2 Outline Decommissioning Plan [EN010163/APP/6.3.4].** However, it is acknowledged that in 40 years, the need to undertake work within waterways may change, so provision has been made in the **Appendix 4.2 Outline Decommissioning Plan [EN010163/APP/6.3.4]** to review the decommissioning requirements and their potential for impacts on waterways at that time.

7.8.63 Habitat in Eastern and Western Biodiversity Mitigation Areas will not be subject to decommissioning.

7.8.64 The significance of effects arising from disturbance and minor loss of habitats during decommissioning is likely (potentially) to be no greater that at the **Site Level Significance** but this is difficult to predict with any accuracy at this stage because of the uncertainty of the post-development nature of the Site.

Mitigation and enhancement

7.8.65 All hedgerow loss will be compensated through the enhancement of retained hedgerows and creation of new species-rich hedgerow. In addition, any affected sections of "important" hedgerows will, wherever possible, be lifted and replanted. There will be approximately 1.08 km of hedgerow loss at the Site, which will be compensated through the planting of 25 km of new species-rich hedgerows, plus reinstatement of losses where works are temporary (such as at cable crossings).

7.8.66 Enhancement of existing hedgerows will be undertaken to approximately 8.7 km of the existing network, through infill planting of gaps, and planting of tree standards. Many of the existing hedgerows are currently managed by regular (annual cutting to 1.5-2m height). Existing and new hedgerows will be managed more favourably for nature conservation by allowing them to become taller (up to 3 m) and wider (over 2 m), with a cutting regime that promotes the development of fruit and nuts, which will be beneficial for birds, bats and other faunal species. Following the establishment of new and enhanced existing hedgerows, and taking into account the grassland hedgerow buffers, habitat connectivity across the Proposed Solar Areas will be maintained and improved.

7.8.67 All woodlands and orchards are retained and protected by the designed in measures. Further enhancement of woodland is provided by complementary planting, for example further woodland creation is proposed adjacent to Fenton Gorse which will enlarge it, which will also benefit a range of animal species such as birds, bats, badgers and deer.

7.8.68 Harm arising from direct damage and soil compaction to retained trees and hedgerows will be avoided by installing tree protection fencing where appropriate during the construction phase. Where hedgerows require breaking through to create access for the construction and operation phases, tree protection would also be used to safeguard the exposed hedgerow where it abuts the working corridor to avoid accidental incursion beyond the agreed working corridor. Other potential effects from dust and pollution incidents will be avoided by implementing standard measures for pollution prevention and dust management.

7.8.69 The Proposed Development includes the enhancement of the retained field margins around the solar arrays with appropriate wildflower mixes used if necessary to increase floristic diversity. Loss of arable field margins will be offset through the

creation of wider arable margins in the Western and Eastern Biodiversity Mitigation Areas.

7.8.70 Potential adverse impacts during the construction and decommissioning phases from pollution incidents and soil sediment discharge will be avoided by implementing standard measures for pollution prevention, dust suppression and soil erosion and run-off. Measures such as fencing and toolbox talk briefings will be implemented during construction to prevent soil compaction and accidental damage to retained habitats such as by encroachment of vehicles. This would be overseen by an ECoW.

7.8.71 Mitigation for impacts on retained habitats during the construction and decommissioning phases, as described above, would be controlled via **Appendix 4.1 - Outline Construction Environmental Management Plan [EN010163/APP/6.3.4]** and **Appendix 4.2 Outline Decommissioning Plan [EN010163/APP/6.3.4]**.

7.8.72 The Eastern Biodiversity Mitigation Area is approximately 100 ha, and will be used for habitat creation and enhancement measures only. It currently supports a large lake (Littleborough Lagoon LWS) and grassland areas within the floodplain of the River Trent that likely qualify as 'coastal and floodplain grazing marsh HPI', but is currently considered to represent a poor example of this habitat type as it is overgrazed by sheep, has poor structural diversity, and few ditches. There are also several arable fields, hedgerows and a section of Mother Drain LWS that passes through the Eastern Biodiversity Mitigation Area. The proposed enhancement works to the Eastern Biodiversity Mitigation Area are set out on **Figure 6.9 Outline Landscape Mitigation Strategy [EN010163/APP/6.4.6]** and in **Appendix 7.14 Outline Landscape Ecological Management Plan [EN010163/APP/6.3.7]**, which include:

- Creation and enhancement of species-rich meadow grasslands (approximately 13 ha).
- Native species woodland and scrub creation (approximately 2 ha).
- Hedgerow enhancements (up to 3km) and creation (1.3 km).
- Aquatic and marginal species planting around Littleborough Lagoon. Currently, the margins are heavily grazed by sheep, which has resulted in restricted plant growth and diversity. New planting and reduction of grazing

will improve marginal areas and provide greater opportunities for nesting birds and aquatic invertebrates.

- The coastal and floodplain grazing marsh HPI will be enhanced through planting additional plant species and adding variation to the topography of habitat. New wet ditches (approximately 1.3 km of varying widths and depths will include new native species planting.
- Wetland scrapes, which will be seasonally wet.
- Permanent ponds of varying sizes which will include new native species planting.
- Arable fields will be enhanced for ground nesting birds (skylark and yellow wagtail) through the provision skylark plots, beetle banks, enhanced arable field margins.

7.8.73 The Western Biodiversity Mitigation Area is approximately 82 ha, and will be used for habitat creation and enhancement measures only. It currently supports arable fields with boundary hedgerows, and a treelined stream. The proposed enhancement works to the Western Biodiversity Mitigation Area are set out on **Figure 6.9 Outline Landscape Mitigation Strategy [EN010163/APP/6.4.6]** and in **Appendix 7.14 Outline Landscape Ecological Management Plan [EN010163/APP/6.3.7]**, which include:

- Creation and enhancement of species-rich meadow grasslands (33 ha).
- Permanent ponds of varying sizes which will include new native species planting.
- Arable fields will be enhanced for ground nesting birds (skylark and yellow wagtail) through the provision skylark plots, beetle banks, enhanced arable field margins.
- Native species woodland and scrub creation (3.4 ha).

7.8.74 The biodiversity mitigation areas will provide a variety of different habitat types. The design of these areas is intended to strike a balance between protecting and enhancing any valuable ecology features already present, and providing new habitat for a wide-range of other species. They will provide benefits to breeding and wintering birds, otters, bats, badgers, terrestrial / aquatic invertebrates and various

other mammal species; further consideration of benefits to other ecology features is presented in the relevant sections below.

7.8.75 Further areas of habitat creation will be provided throughout the Proposed Solar Areas, including modified grassland, species-rich grassland, hedgerows, woodland, orchards, drainage and water attenuation features.

7.8.76 Further details of habitat creation enhancement of retained areas as summarised above is provided within **Appendix 7.14 - Outline Landscape Ecological Management Plan [EN010163/APP/6.3.7]**. and are shown on **Figure 6.9 - Outline Landscape Mitigation Strategy [EN010163/APP/6.4.6]**

Residual effects

7.8.77 Given the extent of the habitat creation and enhancement measures including wildflower grassland, scrub and hedgerow planting, the improvement of local structural vegetation connectivity, and conversion from an arable-dominated landscape to one dominated by permanent grassland with no significant agricultural runoff to watercourses, it is considered that there will be **beneficial effects on HPI habitats, significant at the Site level**.

Consideration of Biodiversity Net Gain

7.8.78 The Environment Act 2021 includes a provision for National Significant Infrastructure Projects (NSIPs) to deliver a Biodiversity Net Gain (BNG), with the biodiversity gain objective defined as at least a 10% increase in the pre-development biodiversity value of the on-site habitat. This provision is yet to come into force and it is Defra's intention that the 10% gain should apply to terrestrial NSIPs accepted for examination from November 2025. Prior to this mandatory period commencing, the 10% biodiversity gain target is considered to be voluntary. Reference to BNG is made in the Bassetlaw Local Plan 2020 – 2038 at paragraph 8.6.21:

'Biodiversity net gain aims to leave the District's biodiversity assets in a better state than currently exists. Reflecting the principles and definitions of the Environment Act 2021, all new development will be expected to secure at least 10% net gain in biodiversity so that the biodiversity value of the development exceeds the predevelopment on site habitat value by at least 10%.'

7.8.79 Further reference is made in the Local Plan to BNG in POLICY ST38: Biodiversity and Geodiversity, which states:

'Biodiversity Net Gain

In line with national legislation, all new development should make provision for net biodiversity gain on site, or where it can be demonstrated after following the mitigation hierarchy that this is not practicable, off site provision will be considered.

Management for a minimum of 30 years in accordance with a maintenance scheme will be sought to manage the biodiversity assets in the long term.'

7.8.80 The details of the biodiversity net gain assessment are presented in **Appendix 7.12 - Biodiversity Net Gain [EN010163/APP/6.3.7]**. Taking into consideration the habitat creation and enhancement proposals, the Statutory Biodiversity Metric yields the following key results:

- Baseline habitat units: 2,118.85 units
- Post-intervention habitat units: 3,282.70 units
- Net change in habitat units: +1,163.85 units
- Percentage change in habitat units: +54.93%
- Surplus of habitat units over the +10% gain target: +951.97 units

7.8.81 The Statutory Biodiversity Metric calculator shows the following headline results for hedgerows:

- Baseline hedgerow units: 650.98 units
- Post-intervention hedgerow units: 882.25 units
- Net change in hedgerow units: +231.27 units
- Percentage change in hedgerow units: +35.53%
- Surplus of hedgerow units over the +10% gain target: 165.07 units

7.8.82 The Statutory Biodiversity Metric calculator shows the following headline results for watercourses:

- Baseline watercourse units: 112.63 units
- Post-intervention watercourse units: 129.16 units
- Net change in watercourse units: +16.53units
- Percentage change in watercourse units: +14.68%
- Surplus of watercourse units over the +10% gain target: 5.27 units

7.8.83 The proposed development abides by the Statutory Biodiversity Metric trading rules and will not require offsite units to achieve a biodiversity net gain.

Breeding birds

Construction phase impacts

7.8.84 The key adverse impact on breeding birds will be loss of arable fields. In addition, small sections of hedgerows will be temporarily lost and disturbed. Breeding birds could also be disturbed by development activities, depending on the time of year. Construction works during the breeding season could result in the loss of active nests.

General assemblage

7.8.85 Habitats supporting the majority of the general breeding bird assemblage (i.e., not including ground-nesting birds) within the Proposed Solar Areas, such as hedgerows and woodland areas will be retained and give rise to minimal impacts on breeding birds.

7.8.86 There is the potential for temporary disturbance impacts to occur to breeding birds using retained habitats within the Proposed Solar Areas, from nearby construction activities during the bird breeding season (typically March to August, although there is some variation depending on the species and the prevailing weather conditions at the time). It is possible that some birds using the retained habitats will be displaced temporarily, potentially resulting in reduced breeding on-site during the construction phase. Such disturbance during construction will be temporary and, because the Site will be developed progressively, not all breeding bird territories would be subject to disturbance.

7.8.87 Small amounts of hedgerow will need to be removed. If this is undertaken during the bird nesting season without mitigation, there is a risk that an active bird nest could be damaged or destroyed. The loss of small amounts of hedgerow will lead to a very minor reduction in nesting habitat in the absence of further mitigation.

7.8.88 Construction activities in arable and grassland fields have the potential to disturb, damage or destroy nests of skylark (assessed separately below) as well as yellow wagtail and grey partridge if undertaken during the bird nesting period.

7.8.89 The habitats in the Eastern and Western Biodiversity Mitigation Areas will not be subject to development works. There will be habitat creation and enhancement works undertaken in these areas using machinery, that could potentially damage

suitable habitat, which unmitigated could damage / destroy bird nests if undertaken during the nesting period.

7.8.90 In the absence of mitigation, there is likely to be an **adverse effect on the bird assemblage that is significant at the Site level.**

Skylark

7.8.91 The arable and grassland fields throughout the Proposed Solar Areas support ground-nesting skylark with an estimated 90 territories recorded in 2024 and 105 territories in 2023. The arable fields will be converted to permanent grassland for the lifetime of the Proposed Development, where the solar arrays will be installed, and the existing grassland retained but with solar infrastructure installed during the construction phase. Some areas of arable fields will be lost for the lifetime of the Proposed Development, to creation of other development infrastructure such as the BESS. These works if undertaken during the bird nesting period have the potential to disturb, damage or destroy skylark nests.

7.8.92 The construction of the solar array on arable and grassland pasture farmland will reduce the available nesting habitat for skylark. Skylark are deterred from locating their nests in areas that are overlooked by tall structures, both natural ones such as woods, mature trees and tall hedges and man-made ones such as buildings and the arrays of solar panels. This arises from their predator avoidance behaviour – such tall structures can either conceal ground predators or provide perches for avian predators (Donald et al., 2001) [38]. The evidence available on the use of solar farms by breeding skylark is that while they may be deterred from nesting beneath solar arrays (Solar Energy UK, 2023)[39] they will continue to forage there amongst the sown grassland (Shotton, 2018)[40].

7.8.93 As a result of the nesting deterrence effect of structures, it is predicted that all skylark territories within the Proposed Solar Areas identified from the field survey will be displaced. The habitats in the Eastern and Western Biodiversity Areas will not be subject to development works, and breeding bird territories in these areas will not be permanently adversely impacted, although some short-term

[38] Donald, et al (2001) 'Factors affecting the territory distribution of Skylarks Alauda arvensis breeding on lowland farmland', Bird Study, 48:3, 271-278
[39] Solar Energy UK (2023), 'Solar Habitat: Ecological trends on solar farms in the UK'. Solar Trade Association
[40] Shotton, R. (2018), available at https://community.rspb.org.uk/ourwork/b/biodiversity/posts/bird-use-of-solarfarms-interim-results

disturbance may arise if enhancement groundworks are undertaken during the nesting period and close to skylark nests.

7.8.94 Within the Proposed Solar Area, there will be open areas of modified grassland that will not have solar infrastructure installed, for example the safeguarded cable corridor route for Gate Burton Energy Park to West Burton Power Station which will be between 50 m and 200 m wide and over 2 km in length; this area would likely have some suitability for small numbers of skylark territories as it would be managed through low intensity grazing or mowing. Aspects of the Proposed Development, such as the creation of wildflower rich grassland on the Site will offer significantly improved foraging opportunities for skylark nesting locally, as the grassland habitats will support a larger biomass of insect prey items than the arable land they will replace.

7.8.95 In the absence of further mitigation, there is likely to be an **adverse effect on skylark that is significant at the District level**.

Operation phase impacts

General assemblage

7.8.96 Significant adverse impacts are not anticipated to occur on the assemblage of breeding birds during the operational phase. There may be some disturbance of habitats within which birds may nest from noise, light and the presence of vehicles and people, however this is likely to be infrequent and localised, and unlikely to be significant.

7.8.97 In the absence of further mitigation, there is likely to be a **neutral and not significant effect on the breeding bird assemblage**.

7.8.98 As habitats develop and mature during the operational phase, there would be an increase in the availability of nesting resources for birds that typically nest in hedgerows, trees, woodland, scrub and field margins, which would be beneficial for those species, albeit not to a significant level.

Skylark

7.8.99 In the absence of further mitigation, there is likely to be a **beneficial effect on skylark that is not significant**, following construction as a result of increased foraging resource.

Decommissioning phase impacts

7.8.100 No further hedgerow loss is anticipated and nesting birds (apart from skylark) are unlikely are likely to be directly affected (although short-term disturbance may arise if work takes place during the nesting season). If works are not timed to avoid the nesting season then there is **potential for adverse short-term disturbance impacts, which would likely be of significance at no greater than Site level**. However, the significance of this is difficult to predict with accuracy at this stage (if it happens at all).

7.8.101 For skylarks and other ground-nesting birds the removal of solar arrays and disturbance of the grassland beneath is not likely to cause disturbance of nests as these birds are unlikely to be nesting among the solar arrays. The removal of infrastructure such as cabling outside of the solar arrays could result in limited short-term disturbance of the ground, so ground-nesting in these areas could be affected, but this would depend on the time of year disturbance takes place. **A temporary impact of no greater than Site level significance could be possible**. Following removal of infrastructure the landscape will likely become more open and in the long-term this may provide opportunities for skylark, although whether this is the case, and the extent and significance of this if it does happen, is not possible to judge at this stage.

Mitigation and enhancement

7.8.102 Clearance of potential bird nesting habitat during construction and decommissioning phases should be avoided in the bird nesting season (typically March to August as a guide, but can be affected by factors such as the prevailing weather conditions). Given the scale of the Proposed Development and the likely length of the construction period, it is likely that some habitat clearance will need to take place during or close to the breeding season; habitat clearance in any particular area during the nesting period should only proceed once a suitably experienced ecologist has checked the particular area and confirmed that nesting birds are not present. If nesting birds are found, they will need to be retained in a suitable buffer until any young have fledged, or the nest becomes inactive. These measures are formalised within **Appendix 4.1 - Outline Construction Environmental Management Plan** [**EN010163/APP/6.3.4**].

7.8.103 Potential bird nesting habitats for the majority of species (such as the hedgerows, woodland, and wetlands (the drains and Littleborough Lagoon)) will be retained. Further habitat for birds will be created within the Proposed Solar Area including

wildflower grassland and hedgerows which will benefit a range of bird species for nesting and foraging. This will ensure continued nesting opportunities for some species of conservation concern including linnet, reed bunting, wren, dunnock and yellowhammer.

7.8.104 The loss of small amounts of hedgerow will be compensated through further hedgerow creation and the enhancement of existing hedgerows.

7.8.105 An appropriate lighting strategy for all phases of development will be produced and implemented.

7.8.106 Further measures to mitigate the potential operational effects of the Proposed Development on skylark in the Eastern and Western Biodiversity Mitigation Areas will increase the local potential of these areas to support increased densities of nesting territories and the number of broods an individual pair can raise each year.

7.8.107 The skylark mitigation strategy is presented in **Appendix 7.13 – Skylark Mitigation Strategy [EN010163/APP/6.3.7],** which shows further details and the locations of the measures at the Site which include:

- Skylark plots within large arable fields.
- Enhanced arable field margins to create wildflower grassland of increased width.
- Beetle banks within large arable fields.

7.8.108 It is estimated that the further mitigation measures could increase the skylark nesting densities in the Eastern and Western Biodiversity Mitigation Areas by 58 territories; this will mitigate approximately 55% (against the 2023 total of 105 territories) to 64% (against the 2024 total of 90 territories) of the territories likely to be displaced from the Proposed Solar Areas. Further areas of grassland creation that would not be impacted by solar development and are of a suitable size for nesting skylark will be present at the Site during the operational phase within the Proposed Solar Areas and the Biodiversity Mitigation Areas. It is not proposed to create these specifically for skylark nesting mitigation, but they are likely to provide secondary biodiversity benefits such as to nesting skylark, thereby increasing the total number of post-development territory opportunities.

7.8.109 In addition to the creation of skylark plots as described above, the Biodiversity Mitigation Areas will be managed optimally for skylark in the long-term. This is different to the current situation which is led by agricultural requirements. Long-

term optimal management would then be expected to increase the number of skylark broods in any given year which will improve the effect of creating the skylark plots.

7.8.110 Further habitat enhancement within the Eastern and Western Biodiversity Mitigation Areas will provide wider benefits to nesting birds beyond skylark. The habitat creation and enhancement measures in the Eastern Biodiversity Mitigation Area will include the reduction in grazing intensity which will create an improved vegetation height and structure, and provide new wet ditches, and wet scrapes; these measures will provide improved ground nesting habitat for birds of conservation concern such as lapwing and curlew. Enhancements to Littleborough Lagoon LWS will provide improved nesting opportunities for waterbirds. The woodland and scrub creation in both Biodiversity Mitigation Areas will provide nesting habitats for a range of bird species. Species-rich meadow grassland habitats in the Biodiversity Mitigation Areas will provide nesting opportunities for ground nesting species such as skylark, meadow pipit, lapwing and grey partridge, in addition to providing foraging opportunities on seeds and invertebrates.

7.8.111 Bird boxes suitable for a range of species are to be installed on retained mature trees at the Site to provide enhanced bird nesting opportunities.

Residual effects

7.8.112 Residual effects on the general bird assemblage (excluding skylark) are considered likely to be **neutral and not significant, and with the potential for Site level beneficial effects** overall as habitat creation and enhancement measures mature.

7.8.113 For skylark, the proposed mitigation is anticipated to reduce adverse effects, although less than half (32 to 47 territories) of the baseline territories at the Site could be displaced (it is not possible to be absolute given the other habitats (non-arable) that will be created, and that will also provide habitat for nesting skylark – but with less certainty about numbers of territories). Skylark is an SPI and Red listed species of conservation concern nationally, and within Nottinghamshire, skylark is listed on the Local Biodiversity Action Plan as a 'species of conservation concern', and given its conservation status and population declines it is considered that there will be an **adverse residual effect on skylark, significant at a Local level**.

Barn owl

Construction phase impacts

7.8.114 No buildings, nest boxes or trees supporting barn owl will be lost or directly impacted during construction.

7.8.115 Habitat buffers have been applied around all trees and buildings with suitability for barn owl or where likely presence is confirmed as part of the designed-in mitigation. This will avoid potential accidental damage to suitable features and most disturbance impacts (including noise, vibration and human presence) to barn owl during construction and decommissioning phases. In the absence of further mitigation, construction works may be undertaken close to nesting locations during the barn owl breeding period, which could cause disturbance impacts (a potential offence under Schedule 1 of the Wildlife and Countryside Act 1981) resulting in unsuccessful breeding.

7.8.116 The majority of suitable barn owl foraging habitat such as the grassland hedgerow and drain margins will be retained. There could be indirect negative effects upon these retained habitats and potential / confirmed roost features in trees or buildings if they are artificially illuminated during construction, for example by security lighting. This could result in avoidance of these features by barn owl.

7.8.117 Given the likely localised extent of unmitigated disturbance and lighting during construction, and the overall resource of other suitable foraging and roost features elsewhere in the Site and locally, in the absence of further mitigation, these impacts would result in a **temporary adverse effect during construction, significant at the Site level**.

Operation phase impacts

7.8.118 No lighting is proposed in the Proposed Solar Areas. Some lighting is required around the BESS / substation areas, but this will not be permanently activated Where areas of lighting are proposed, then depending on their location and in the absence of mitigation, this could illuminate barn owl nest / roost locations and foraging habitats and lead to abandonment / avoidance of such features.

7.8.119 In the absence of further mitigation, impacts from lighting are likely to be highly localised and not impact upon a high number of the overall nest / roost locations or foraging habitats, and therefore result in an **adverse effect, significant at the Site level**.

Decommissioning phase impacts

7.8.120 No buildings, nest boxes or trees that currently have potential to support barn owl will be lost or directly impacted and the habitat buffers that were established at the outset of construction will be retained during decommissioning. This will avoid potential accidental damage to currently identified suitable features and most disturbance impacts. The potential of trees and structures in the future is not possible to predict and therefore in the absence of further mitigation, it is possible that decommissioning work could be required close to future nesting or roosting locations, during the barn owl breeding period. This is not possible to predict at this stage but if it is assumed that the overall resource of suitable foraging and roost features in the Site and locally does not change significantly (and on the assumption of continued barn owl presence) it is possible that in the absence of further mitigation such impacts, if they arose, could result in a temporary **adverse effect during decommissioning, potentially significant at the Site level**.

Mitigation and enhancement

7.8.121 The habitat creation forming part of the Proposed Development will increase the grassland resource and will be of benefit to foraging barn owls as such habitats would support greater numbers of small mammals upon which they feed.

7.8.122 Mitigation measures include timing of construction and decommissioning works near nest / roost locations outside of the main barn owl nesting period (typically March to August- although barn owl can nest earlier and later during the year). Prior to the commencement of construction / decommissioning works that could give rise to disturbance impacts on barn owls, the features with barn owl nesting / roosting potential will be inspected by a barn owl-licensed ecologist. The risk to barn owls, and the need for further mitigation (such as appropriate timing of works) would then be reviewed by a suitably experienced ecologist. These measures are included within **Appendix 4.1 - Outline Construction Environmental Management Plan [EN010163/APP/6.3.4] and Appendix 4.2 Outline Decommissioning Plan [EN010163/APP/6.3.4])**.

7.8.123 Where artificial lighting is required, further mitigation may be required such as the avoidance of light spill onto foraging habitats or onto potential / confirmed nest or roost locations.

7.8.124 Barn owl nest boxes will be installed on retained mature trees at the Site in order to provide enhanced nesting opportunities.

Residual effects

7.8.125 Due to the increase in foraging opportunities inherent in the habitat enhancement measures, the residual effect on the local barn owl population is likely to be **beneficial, significant at a Local level**.

Wintering birds

Construction phase impacts

7.8.126 The Proposed Development seeks to retain the majority of the hedgerows, woodland, trees and watercourses that will maintain the overwintering habitat used by birds of conservation concern / SPI bird species recorded within the Site including fieldfare, redwing, linnet, various birds of prey and yellowhammer.

7.8.127 It is possible that some birds using the retained habitats will be displaced temporarily during the construction phase as a result of disturbance. Displacement of overwintering species that prefer an open landscape, including skylark, starling and gull species, could arise. Work during the winter period could also result in the temporary disturbance of adjacent off-site habitats.

7.8.128 The areas of the Site closer to the River Trent, particularly the wetland and adjacent farmland habitats in the Eastern Biodiversity Mitigation Area, support a greater species diversity and higher numbers of birds, typically waders and waterbirds and birds of prey hunting; the Proposed Development would retain these areas, and they will be unaffected during construction.

7.8.129 It is likely that the habitats at the Site are used as part of an inland network of habitats for wintering birds, particularly along the River Trent corridor.

7.8.130 As the Site is very typical of the farmed landscape in this locality and many opportunities for wintering birds are present throughout, the effect of impacts arising from the Proposed Development are likely to be relatively localised. In the absence of mitigation, there is likely to be an **adverse effect on the wintering bird assemblage that is significant at the Site level**.

Operation phase impacts

7.8.131 Significant adverse impacts are not expected to occur to wintering birds during the operational phase. The landscape will change in character, but this will already have taken place at the construction stage. The impact is assessed as **Neutral and Not Significant.**

Decommissioning phase impacts

7.8.132 There will be no loss of hedgerows, woodland, trees or watercourses during decommissioning which will maintain the overwintering habitat used by birds of conservation concern / SPI bird species.

7.8.133 Depending on timing, it is possible that some birds using the retained habitats will be displaced temporarily during decommissioning.

7.8.134 The Eastern and Western Biodiversity Mitigation Areas will be retained during decommissioning.

7.8.135 Impacts would only arise if decommissioning took place during the wintering bird season. If it did, then impacts would be likely to be localised and in the absence of mitigation there is potential (if it is assumed that the wintering bird interest is similar at this stage) for a temporary adverse effect on the wintering bird assemblage to arise that would be **significant at the Site level** but this is difficult to predict given the unknown nature of the Site at that time.

Mitigation and enhancement

7.8.136 Habitat enhancement within the Eastern and Western Biodiversity Mitigation Areas will provide wider benefits to wintering birds. The measures in the Eastern Biodiversity Mitigation Area will include new wet ditches, and wet scrapes. The wet woodland planting around part of Littleborough Lagoon LWS will provide some sheltered areas, and the large-open water areas of the Lagoon will be retained with enhanced margins, thereby offering a greater variation of habitat that would be beneficial for wider variety of species. These wetland habitats will be highly favourable to overwintering wading bird species and provide hunting opportunities for birds of prey. Species-rich meadow grassland habitats, hedgerows and arable field margins in the Biodiversity Mitigation Areas will provide winter foraging opportunities from increased seed production and a more diverse invertebrate fauna.

7.8.137 Within the Proposed Solar Areas the hedgerows, grassland field margins, and species-rich meadow grassland will also provide winter foraging opportunities on seeds and invertebrates.

7.8.138 There will be no artificial lighting within the Proposed Solar Areas. There will be lighting columns around the Battery energy storage system (BESS) / substation area for security and maintenance purposes, but these are not expected to be permanently activated.

Residual effects

7.8.139 The habitat creation and long-term management of the Eastern and Western Biodiversity Mitigation Areas, along with habitat measures within the Proposed Solar Areas, will benefit the wintering bird population and offset adverse effects of the Proposed Development. Residual effects on the wintering bird assemblage are considered likely to be **neutral and not significant.**

Bats

Construction phase impacts

7.8.140 All trees and buildings with confirmed and potential roosts will be retained and unaffected, and each is to be further protected through semi-natural habitat buffers as part of the Proposed Development. This will avoid potential accidental damage to suitable features (such as from vehicle movements) and disturbance impacts during the construction phase. Should it become necessary for any unforeseen reason to directly impact potential bat roost features, and potential effects cannot be avoided, further survey would be undertaken.

7.8.141 Arable fields will be converted to permanent grassland and solar arrays will be installed on these areas and several other existing grassland fields. There is likely to be some arable field and hedgerow loss during the construction phase. The paired-detectors deployed as part of the bat activity survey work between April and October 2024 (see **Appendix 7.7 - Bat report [EN010163/APP/6.3.7]** for further detail) demonstrate that bat activity is lower in the central areas of the arable fields, and that the field boundary hedgerows are of greater importance for foraging and commuting. The loss of arable habitats is unlikely to have a significant effect on local bat populations.

7.8.142 The identified areas of hedgerow loss will be relatively small-scale in each location, and will not give rise to fragmentation of bat habitats.

7.8.143 The majority of suitable bat foraging and commuting habitat such as the hedgerows, woodlands and watercourses will be retained and protected and enhanced through semi-natural habitat buffers as part of the designed-in mitigation. There could be indirect negative impacts upon these retained habitats and potential / confirmed roost features in trees or buildings if they are artificially illuminated during construction, for example by security lighting. This could result in avoidance of these features by bats.

7.8.144 Any lighting will be localised and temporary and disturbance from lighting impacts during construction is unlikely.

7.8.145 Taking into account the retained resource of foraging habitat and roost features elsewhere in the Site and locally, in the absence of mitigation, potential impacts could result in a **temporary adverse effect during construction, significant at the Site level**.

Operation phase impacts

7.8.146 No lighting is proposed in the Proposed Solar Areas. Some lighting is required around the BESS / substation areas, but is not expected to be permanently activated. Where areas of lighting are proposed, in the absence of mitigation, this could illuminate roost locations, and foraging / commuting habitats.

7.8.147 As habitats develop and mature during the operational phase, there would be an increase in the availability of foraging and commuting habitats for bats at hedgerows, trees, woodland, waterbodies and scrub, which would be beneficial, albeit not to a significant level.

7.8.148 In the absence of mitigation, impacts from lighting are likely to be highly localised and not impact a high number of the potential overall roost locations or foraging / commuting habitats. **A localised adverse effect could arise, significant at the Site level**.

Decommissioning phase impacts

7.8.149 No buildings, nest boxes or trees that currently have potential to support roosting bats will be lost or directly impacted and the habitat buffers that were established at the outset of construction will be retained during decommissioning. This will avoid potential accidental damage to currently identified suitable features and most disturbance impacts. The bat roosting potential of trees and structures in the future is not possible to predict and therefore in the absence of further mitigation, it is possible that decommissioning work could be required close to future roosting locations.

7.8.150 This is not possible to predict at this stage but if it is assumed that the overall resource of suitable foraging and roost features in the Site and locally does not change significantly (and on the assumption of a continued presence of bats) it is possible that in the absence of further mitigation such impacts, if they arose, could result in a temporary adverse effect during decommissioning, **potentially significant at the Site level**.

Mitigation and enhancement

7.8.151 The habitat creation associated with the Proposed Development will increase the habitat resource for foraging bats including enhanced and new hedgerows, species-rich grassland, woodland, scrub and waterbodies as such habitats will support invertebrates upon which they prey. The hedgerow resource is being enhanced through new hedge planting, infilling of existing gaps and improved management to encourage taller / wider growth will improve connectivity through the Site for commuting bats.

7.8.152 All trees and buildings with bat roost suitability have been retained and the minimum buffers of 10-15 m depending on roost suitability can be achieved. This is considered to mitigate potentially significant disturbance impacts during construction, and no further is considered necessary.

7.8.153 Bat roost boxes will be installed on retained mature trees at the Site to provide enhanced roosting opportunities.

7.8.154 Any lighting will be localised and temporary (refer to Chapter 4 - Proposed Development [EN010163/APP/6.2.4]) and disturbance from lighting impacts during construction is unlikely. If artificial lighting is required, mitigation will be required to ensure avoidance of light spill onto foraging habitats. No spill onto potential roost habitats is anticipated.. Any lighting would be designed such that new bat roosting features are not directly illuminated and that retained on and off-site bat foraging habitats (such as hedgerows, watercourses and woodland) remain sufficiently dark with reference to bats and lighting guidance[41].

7.8.155 Prior to the commencement of decommissioning works that could give rise to disturbance impacts on bats, any features with bat roosting potential that are not within established buffers will be surveyed. The risk to bats, and the need for further mitigation (such as appropriate timing of works) would then be reviewed by a suitably experienced ecologist.

Residual effects

7.8.156 With the control of lighting and disturbance of potential roost features, and given the increase in foraging and commuting opportunities inherent in the designed-in habitat enhancement measures, the residual effect on the local bat population is likely to be **beneficial, significant at the Local level**.

[41] Institute of Lighting Professionals (ILP) & Bat Conservation Trust (BCT) (2023); 'Bats and artificial lighting at night. Guidance Note 08/23'. Institute of Lighting Professionals Publication, Rugby.

Badger

Construction phase impacts

7.8.157 The Proposed Development will retain the habitats of highest value as a foraging resource for badgers, such as woodland, field margins and hedgerows and will maintain habitat continuity for badgers across the Site.

7.8.158 The Proposed Development has sought to retain all setts within appropriate buffers where possible, with the intention of fully protecting them during construction. However, some badger setts may require closure (under licence) to protect badgers from possible injury but the need for this will depend on the detailed design of the Proposed Development, and the status of each sett at the time (which will be determined through updated badger survey work).

7.8.159 In the absence of mitigation, accidental encroachment of vehicles into buffer areas that damages badger setts and tunnels may occur during the construction phase. The construction phase may give rise to some fragmentation of habitat used by badgers.

7.8.160 The installation of security fencing may result in the fragmentation of clan territories and the loss of access to foraging habitats.

7.8.161 Open excavations during construction could trap and injure badgers.

Operation phase impacts

7.8.162 Adverse impacts are not expected to occur to badger during the operational phase.

Decommissioning phase impacts

7.8.163 The removal from the ground of some infrastructure may disturb badger setts but the likelihood of this is very difficult to judge at this stage. Transport infrastructure will already be in place to facilitate decommissioning. Open excavations during construction could trap and injure badgers.

Mitigation and enhancement

7.8.164 The Proposed Development will increase the areas of hedgerows, scrub, woodland and grassland and will be of benefit to foraging badgers. Foraging enhancement will be provided within the habitat buffers that will include native fruit bearing species. The conversion of arable fields to grassland will provide greater areas of suitable foraging habitat.

7.8.165 The majority of badger setts at the Site are retained and protected by appropriate habitat buffers. Where potential impacts to a badger sett are unavoidable during

construction or decommissioning phases, and risk to the sett cannot be controlled by precautionary methods of working, those setts will be temporarily closed under a Natural England badger development licence for the duration of the construction works. This would formally be secured by submitting a licence application to Natural England following granting of necessary development consents. It may be appropriate to submit a draft licence application to Natural England during the Examination period to allow a Letter of No Impediment to be issued to demonstrate that there is no reason that a licence would not be granted, post DCO consent (for construction phase impacts).

7.8.166 Updated badger survey will take place prior to construction and decommissioning. During construction or decommissioning, the buffer zones around retained badger setts will be clearly demarcated with Heras fencing and appropriate signage to ensure construction works do not encroach into these areas.

7.8.167 To reduce the potential impacts of fragmentation of foraging habitat due to the installation of security fencing, small gaps in the fencing will be created to allow continued movement throughout the Proposed Solar Areas. Gaps of approximately 35 cm x 35 cm at ground level would allow for continued use. Access gaps will be strategically sited where existing mammal paths are present, and periodically elsewhere.

7.8.168 During construction, deep excavations will be provided with a means of escape for mammals (e.g., a ramp of compacted soil) to ensure that any badgers (or other wildlife) do not become trapped in excavations overnight. No operational phase measures are considered necessary at this stage. Outline mitigation measures for badger are set out within **Appendix 4.1 - Outline Construction Environmental Management Plan [EN010163/APP/6.3.4]**).

Otter

Construction phase impacts

7.8.169 No evidence of potential holts / resting sites has been recorded on or adjacent to the Site. There are some areas of suitable habitat that could be used for rest or shelter, such as areas of scrub and woodland near to watercourses, and these habitats will be retained as part of the designed-in measures.

7.8.170 Survey evidence suggests that otter occasionally pass through the Site along the drains, and potentially overland in some areas, most likely as part of a wider territory associated with the River Trent. The Proposed Development will retain

watercourses in the Proposed Solar Areas and incorporate them into semi-natural habitat buffers that extend 10 m from each bank top. These measures will reduce potential disturbance of commuting otter during construction and will maintain habitat connectivity through Site during the construction and operational phases.

7.8.171 Physical impacts to watercourses will be avoided by semi-natural buffers and using clear-span bridges where vehicle access is required, and horizontal directional drilling for cabling beneath watercourses during construction, all forming part of the Proposed Development

7.8.172 In the absence of mitigation measures, **no significant adverse impacts on otters are likely to arise (Neutral and Not Significant)**.

Operation phase impacts

7.8.173 There will be no regular disturbance arising from the operation of the Proposed Development. There will be very little human disturbance apart from periodic management works; and operations near water courses will be undertaken following appropriate working methods. **Significant adverse impacts are not expected** to occur to otter during the operational phase **(Neutral and Not Significant)**.

Decommissioning phase impacts

7.8.174 The future presence of holts or other resting places on the Site (and in locations where they could be impacted by decommissioning works) is not possible to predict.

7.8.175 The measures put in place during the construction phase to avoid pollution and disturbance of watercourses would remain at decommissioning and although the status of otters at the Site during decommissioning is not possible to predict, it is likely that the significance of impacts on otters at decommissioning would be **Neutral and not significant**, although this is not possible to say with certainty at this stage.

Mitigation and enhancement

7.8.176 An updated otter survey will be undertaken prior to certain construction and decommissioning works near to watercourses (for example access routes across these features) that may cause disturbance impacts to otter to confirm the continued absence of holts. A similar updating survey will be undertaken in advance of decommissioning work.

7.8.177 Otter habitat is likely to benefit from the changes in land management, and reduction of agricultural chemical run-off into watercourses and waterbodies. Further aquatic / wetland and terrestrial habitats suitable for otter are being brought forward as part of the site design and embedded mitigation.

7.8.178 Where access crossing points on ditches / drains are required, these will be clear span structures.

7.8.179 An appropriate lighting strategy for all phases of development will be produced and implemented.

7.8.180 Outline mitigation measures for otter are set out within **Appendix 4.1 - Outline Construction Environmental Management Plan [EN010163/APP/6.3.4]**).

Residual effects

7.8.181 The Site is not well used by otters and any features that do have potential for otters are largely unaffected. In addition, the Proposed Development brings forward new habitat that will provide further habitat opportunities for otter. **No significant adverse impacts on otters are likely to arise. (Neutral and Not Significant)**

Water vole

Construction phase impacts

7.8.182 On a precautionary basis, it is considered possible that water vole may be present at very low densities within the Site, including within the watercourses in the Proposed Solar Areas.

7.8.183 The Proposed Development will retain watercourses in the Proposed Solar Areas and incorporate them into semi-natural habitat buffers that extend 10 m from each bank top. These measures will reduce potential for damaging water voles or their burrows (if present) during construction and will maintain habitat connectivity through Site during the construction and operational phases.

7.8.184 Physical impacts to watercourses will be avoided by semi-natural buffers and using clear-span bridges where vehicle access is required, and horizontal directional drilling for cabling beneath watercourses during construction, all forming part of the Proposed Development. However, in the absence of mitigation, there is a risk that water voles could be impacted (if present) during the construction of watercourse access crossings (if required). Any such impacts would be **highly localised and significant at the Site level**, based on precautionary assumption of a very low level of presence.

Operation phase impacts

7.8.185 Once the Proposed Development is operational it will not give rise to direct or indirect impacts on water vole or habitat that has potential to support water vole. **Significant adverse impacts are not expected** to occur to water vole during the operational phase **(Neutral and Not Significant)**.

Decommissioning phase impacts

7.8.186 The future presence of water voles on the Site (and in locations where they could be impacted by decommissioning works) is not possible to predict.

7.8.187 At this stage, the only identified potential source of an impact, in the absence of mitigation, is pollution of watercourses which could result in harm to water voles, which is mitigated by standard good practice watercourse protection measures.

7.8.188 Although the status of water voles at the Site during decommissioning is not possible to predict, the control of impacts on the watercourse (pollution and disturbance) mean that if they were to be present any impact upon them would likely be **Neutral and not significant**.

7.8.189 it is not possible to assess the level or significance of any impacts at this stage.

Mitigation and enhancement

7.8.190 An updated check for water vole presence will be undertaken in advance of certain construction and decommissioning works near to watercourses (for example access routes across these features) to determine the status of water vole activity at that time, as well as to assess their potential to be impacted. Appropriate mitigation measures would be implemented, if required. Where access crossing points on ditches / drains are required, these will typically be clear span structures. Outline mitigation measures for water vole are set out within **Appendix 4.1 - Outline Construction Environmental Management Plan [EN010163/APP/6.3.4])**.

7.8.191 Water vole habitat is likely to benefit from the changes in land management, and reduction of agricultural chemical run-off into watercourses and waterbodies. The creation of wetland habitats in the Biodiversity Mitigation Areas will be of benefit to water vole.

Residual effects

7.8.192 Residual effects on water vole are considered likely to be **neutral and not significant** if water voles are present; but with the potential for **beneficial effects overall, significant at the Site level**.

Great crested newt

Construction phase impacts

7.8.193 Great crested newt presence has not been recorded in on-site waterbodies, or in any off-site waterbodies that could be accessed for survey.

7.8.194 As set out earlier in this chapter, Ponds 6, 13, 15 and 18 were not accessible for HSI assessment or eDNA survey and no desk study information was available for them.

7.8.195 Where suitable habitat is present at a pond that supports great crested newts, the majority of a population will use terrestrial habitats within 50m of the breeding pond[42] . Research commissioned by Natural England[43] , has shown that great crested newt densities are very low over 100 m from the breeding pond and that a majority occur within 50 m of the pond. The same research found that it is inefficient to put in place any significant mitigation measures for those ponds more than 250 m away from a development footprint, as most newt movements are within 250 m of breeding ponds.

7.8.196 A summary of the setting and distances of these ponds from the Site boundary follow:

- Pond 6: located within a private residential garden, ca. 100 m from the closest part of the Site boundary (Wheatley Road) which is within the boundary for vehicle access purposes only. The pond is located ca. 450 m from the Proposed Solar Areas (and further to the development itself).

  Due to the distance to construction activities from the pond, no construction phase impacts are likely to arise. Construction works are at least 250 from the pond.

- Pond 13: located within a private residential garden, ca. 10 m from the closest part of the Site boundary (Gainsborough Road) which is within the boundary for vehicle access purposes only. The pond is located ca. 340 m from the Proposed Solar Areas (and further to the development itself).

[42] Jehle (2000). The terrestrial summer habitat of radio tracked great crested newts (Triturus cristatus and marbled newts (Triturus marmoratus). The Herpetological Journal 10: 137-143.
[43] Cresswell and Whitworth (2004). 'An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt'. English Nature Research Report No. 576.

Due to the distance to construction activities from the pond, no construction phase impacts are likely to arise. Construction works are at least 250 from the pond.

- Pond 15: located within a private residential garden ca. 240 m from the closest part of the Site boundary of the Proposed Solar Area. It is approximately 250 m from temporary ground disturbance (proposed cable routing) and approximately 300 m from the main installation works.

  Due to the distance to construction activities from the pond, no construction phase impacts are likely to arise. Construction works are at least 250 from the pond.

- Pond 18: located within a private residential garden ca. 180 m from temporary ground disturbance (proposed cable routing). It is approximately 250 m to the next nearest works (site security fencing) and beyond this are the main installation works.

  Due to the distance to construction activities from the pond, no construction phase impacts are likely to arise. Most construction works are at least 250 from the pond. The cabling route is slightly closer (180 m) but associated works will give rise to a temporary impact on low quality habitat for great crested newts.

7.8.197 The setting of Ponds 6, 13, 15 and 18 is such that they are surrounded by higher quality habitat (woodland, grassland, scrub as inferred from aerial photography (Google Earth Pro, accessed March 2025)). This is much higher quality habitat that the land within the Site and within 250 m of the ponds. All construction works are at least 250 from these ponds.

7.8.198 In respect of these four un-surveyed ponds the distances to construction activities from each pond is such that no adverse construction phase impacts are likely to arise on great crested newts and no offence in respect of great crested newts is likely to arise.

7.8.199 The unmitigated impact on great crested newts during the construction phase is assessed as **neutral and not significant.**

Operation phase impacts

7.8.200 The designed-in habitat creation and enhancement proposals, particularly the conversion of arable fields to permanent grassland, and the creation and

management of field margins to improve their structural diversity, will result in an overall increase in the extent and value of terrestrial habitats for great crested newt and other amphibian species that may be present. Waterbodies suitable for amphibian breeding may also be provided which would improve breeding opportunities.

7.8.201 In the absence of further mitigation / enhancement this has the potential (if newts are present) to give rise to a **beneficial effect on the local great crested newt population that is not significant**.

Decommissioning phase impacts

7.8.202 The future status of great crested newts on or close to the Site is not possible to predict and so it is not possible to say whether any decommissioning work would give rise to impacts on newts or their habitat. Prior to decommissioning an updated survey of ponds would be undertaken to determine the local status of the species.

Mitigation and enhancement

7.8.203 No further mitigation is required. Notwithstanding this, pre-construction surveys for the presence of newts for any works in the limited areas within 250 m of Ponds 6, 13, 15, and 18 will take place. In addition, works in these limited zones will be timed to avoid spring and summer when newts are most likely to be away from ponds. In the unlikely event that a newt is found in a location that could lead to its harm, it can be appropriately avoided.

7.8.204 Ongoing management of suitable amphibian habitats during the operational phase would be undertaken at an appropriate time of year and using appropriate methods.

7.8.205 New ponds will be created throughout the Site which will provide suitable breeding habitat for great crested newt and other amphibians. The creation of wildflower grassland, woodland, hedgerows and scrub will provide suitable terrestrial habitat and woody material felled during hedgerow section removal will be retained and used to create log / brash piles within habitat buffers. These measures will be of benefit to amphibian species including great crested newt should they be present nearby, or present in the future.

Residual effects

7.8.206 Adverse impacts on great crested newt are unlikely to arise. The overall amount of arable land to be converted to permanent grassland and the potential for further waterbodies to be created, could give rise to a **beneficial effect on great crested**

newt (if present) and other amphibians. A beneficial effect, if it arose, would be **slight and not significant**.

Aquatic invertebrates

Construction phase impacts

7.8.207 The two watercourses at the Site that are designated as LWS on account of their aquatic invertebrate interest are to be retained and incorporated into semi-natural habitat buffers as part of the Proposed Development. Access crossings to these LWSs are avoided as part of designed-in measures to prevent physical damage.

7.8.208 All other watercourses in the Proposed Solar Areas will be retained and incorporated into semi-natural habitat buffers as part of the Proposed Development.

7.8.209 Physical impacts to watercourses will be avoided by semi-natural habitat buffers and using clear-span bridges where vehicle access is required across most wet ditches, and horizontal directional drilling for cabling beneath watercourses during construction, forming part of the Proposed Development. Three new culverts are proposed on seasonally wet ditches DD6, ED1 and ED2 which are considered to be of low suitability for aquatic invertebrates as all three ditches are noted to be dry during the summer and support shallow water (c. 6cm deep) at other times. Impacts to aquatic invertebrates from new watercourse and cabling crossings are therefore not expected.

7.8.210 In the absence of mitigation measures, there is a temporary risk of accidental pollution or soil sediment discharge into retained watercourses which could cause adverse effects on aquatic invertebrates.

7.8.211 Drains, wet ditches and waterbodies in the Eastern and Western Biodiversity Areas are to be retained and there will be no negative effects from the construction phase.

7.8.212 Given the presence of ditches within the Site that have been designated as LWS on account of their aquatic invertebrate interest, in the absence of further mitigation, **adverse effects on aquatic invertebrates may be significant at up to County level**.

Operation phase impacts

7.8.213 Aquatic invertebrates are likely to benefit from the changes in land management, and reduction of agricultural chemical run-off into watercourses and waterbodies.

7.8.214 Operational phase effects are considered likely to be **neutral and not significant.**

Decommissioning phase impacts

7.8.215 In the absence of mitigation measures, there is a temporary risk of accidental pollution or soil sediment discharge into retained watercourses which could cause adverse effects on aquatic invertebrates.

7.8.216 Drains, wet ditches and waterbodies in the Eastern and Western Biodiversity Areas are to be retained and there will be no negative effects from the decommissioning phase.

7.8.217 Given the presence of ditches within the Site that have been designated as LWS on account of their aquatic invertebrate interest, and on the assumption that these watercourses retain their invertebrate interest, it is possible that in the absence of further mitigation, adverse effects on aquatic invertebrates could arise that are **potentially significant at up to County level**, although this is not possible to predict.

Mitigation and enhancement

7.8.218 Potential construction and decommissioning phase adverse impacts from pollution incidents and soil sediment discharge will be avoided by implementing standard measures as set out in the OCEMP, including measures for pollution prevention and soil erosion and run-off. See **Appendix 4.1 - Outline Construction Environmental Management Plan [EN010163/APP/6.3.4]** and the **Appendix 4.2 - Outline Decommissioning Plan [EN010163/APP/6.3.4]**

7.8.219 A minimum of 15m buffers will be applied to the LWS drains/ditches by design, and all other drains / ditches will either have adjacent arable management removed (enhanced to grassland within the Proposed Solar Areas) or will have a minimum 10m non-arable buffer (species-rich field margins to be managed in the retained arable land managed for farmland birds). In addition, new ponds and shallow scrapes will be created near the LWSs, which will be beneficial to species such as the diving beetles (*Agabus* spp.).

7.8.220 New ponds are proposed throughout the Site, and new wet ditches totalling 1.3 km will be created in the Eastern Biodiversity Mitigation Area; these will provide further suitable habitats for a range of aquatic invertebrate species.

Residual effects

7.8.221 With a reduction in agricultural run-off and the creation of vegetated watercourse stand-off zones / buffers and new wetland habitats, residual effects on aquatic

invertebrates are considered likely to be **beneficial and significant at the Local level**.

Terrestrial invertebrates

Construction phase impacts

7.8.222 The main impacts during construction will be the loss of arable fields to be replaced by solar and BESS infrastructure and permanent grassland and a range of other habitats. Arable fields are a poor habitat for terrestrial invertebrates due to their limited floristic diversity and the application of pesticides.

7.8.223 The habitats within the Site are common and widespread in the local area and are unlikely to be of high importance for notable invertebrate species. Those that have increased potential, such as more floristically diverse arable field margins and trees with deadwood, are largely retained and incorporated into semi-natural habitat buffers as part of the Proposed Development. As the habitats to be adversely affected are suboptimal for terrestrial invertebrates, any **adverse impact on terrestrial invertebrates would not be significant**.

Operation phase impacts

7.8.224 During the operation phase there will be no habitat loss or disruption and significant adverse effects are not expected to arise.

7.8.225 As the enhanced and created habitats mature and become established during the operation phase, the increase in species and structural diversity will result in **benefits to a range of terrestrial invertebrate species, albeit to a level that is not considered to be significant**.

Decommissioning phase impacts

7.8.226 Over the life of the Proposed Development it is likely that the terrestrial invertebrate interest of the Site will increase because of the introduction of a greater range of more complex habitats and increased structural and botanical diversity. However, the interest of the Site at the decommissioning stage is not possible to predict with any degree of certainty, and the habitats that are affected cannot be predicted at this stage. The impact of decommissioning is not predictable at this stage.

Mitigation and enhancement

7.8.227 Woody material felled during hedgerow section removal (if required) will be retained and used to create log / brash piles within habitat buffers as an enhancement. This will benefit a range of invertebrate species.

7.8.228 Outline management prescriptions for the retained, enhanced and created habitats within the Proposed Solar Areas, and Biodiversity Mitigation Areas are provided in **Appendix 7.14 Outline Landscape Ecological Management Plan [EN010163/APP/6.3.7]**. The areas of species-rich grasslands, and hedgerows in particular can be expected to support increased numbers and greater diversity of terrestrial invertebrates.

Residual effects

7.8.229 With a reduction in agricultural pesticide applications, and the creation and enhancement of species-rich meadow grassland, wetlands, orchards, woodlands and hedgerows , residual effects on terrestrial invertebrates are considered likely to be **beneficial, significant at the Site level.**

Reptiles

Construction phase impacts

7.8.230 The majority of suitable reptile habitats would be retained as part of the Proposed Development.

7.8.231 Small amounts of habitat suitable for reptiles will be lost during the construction phase, such as removal of sections of hedgerows and associated grassland margins to allow for access. There is a minor risk of killing / injury of individual reptiles (if present) if work in these habitats is undertaken without further mitigation. In the absence of further mitigation, these impacts would result in an **adverse effect during construction significant at the Site level (if reptiles are present).**

Operation phase impacts

7.8.232 **Significant adverse impacts are not expected** to occur **(Neutral and Not Significant)** during the operational phase, given that potential impacts to suitable reptile habitat would be limited to habitat management.

Decommissioning phase impacts

7.8.233 Over the life of the Proposed Development it is likely that the reptile potential of the Site will increase because of the introduction of a greater range of more complex habitats and increased structural and botanical diversity. However, the reptile interest of the Site at the decommissioning stage is not possible to predict with any degree of certainty, and the habitats that are affected cannot be predicted at this stage. The impact of decommissioning is not predictable at this stage.

7.8.234 However, the nature of the Site once infrastructure has been removed is now known and the interest of the Site at that stage for reptiles is not possible to assess at this

stage. As a result it is not possible to predict the significance of impacts on reptiles at this stage.

Mitigation and enhancement

7.8.235 A precautionary method of working, involving appropriate timing of work and progressive removal of vegetation, will be adopted in the limited areas of suitable habitat likely to be impacted during construction and decommissioning. Ongoing management of suitable reptile habitats during the operational phase would be undertaken at an appropriate time of year and using appropriate methods. This will mitigate the risk to reptiles, if present. These measures are presented in **Appendix 4.1 - Outline Construction Environmental Management Plan [EN010163/APP/6.3.4].**

7.8.236 Woody material felled during hedgerow section removal (if required) will be retained and used to create log / brash piles within habitat buffers, that could be used for shelter and / or hibernation, which would increase the potential of the Site to support reptiles

Residual effects

7.8.237 Residual effects on reptiles (if present) are considered **likely to be neutral and not significant**, but with the potential for **beneficial effects, at a level that is not significant**

Fish

Construction phase impacts

7.8.238 All watercourses in the Proposed Solar Areas will be retained and incorporated into semi-natural habitat buffers as part of the Proposed Development. Suitable habitat for fish in the Eastern and Western Biodiversity Areas are to be retained and there will be no negative effects from the construction phase.

7.8.239 Physical impacts to watercourses will be avoided by semi-natural habitat buffers and using clear-span bridges where vehicle access is required across suitable watercourses for fish, and directional drilling for cabling beneath watercourses during construction, forming part of the Proposed Development. Three new culverts are proposed on seasonally wet ditches DD6, ED1 and ED2 which are considered to be unsuitable for fish as all three ditches are dry during the summer and support shallow water (c. 6cm deep) at other times. Impacts to fish from new watercourse and cabling crossings are therefore not expected.

7.8.240 The Site will move from intensive arable management to permanent grassland, with a reduction in agricultural run-off which is likely to improve watercourse water quality.

7.8.241 In the absence of mitigation measures, there is a risk of accidental pollution or soil sediment discharge into retained watercourses which could cause adverse effects to fish at the Site, and potentially off-site in connected watercourses. In the absence of further mitigation, **adverse effects on fish may be significant at up to Local level**.

Operation phase impacts

7.8.242 Significant adverse effects are not expected to occur during the operational phase. Fish are likely to benefit from the changes in land management, and reduction of agricultural chemical run-off into watercourses and waterbodies, which would **be beneficial and significant at the Site level**.

Decommissioning phase impacts

7.8.243 In the absence of mitigation measures, there is a risk of accidental pollution or soil sediment discharge into retained watercourses which could cause adverse effects to fish at the Site, and potentially off-site in connected watercourses. In the absence of further mitigation, adverse effects on fish could arise, and these **may potentially be may be significant at up to Local level, a**lthough this is difficult to predict given the uncertainty about future fish interest at the Site.

Mitigation and enhancement

7.8.244 Potential adverse effects on fish from pollution incidents and soil sediment discharge will be avoided by implementing standard measures for pollution prevention and soil erosion and run-off during construction and decommissioning phases. Where access crossing points on ditches / drains are required, these will be clear span structures.

Residual effects

7.8.245 Residual effects on fish are considered likely to be **neutral at least, and potentially beneficial and significant at the Site level.**

Dormouse

Construction phase impacts

7.8.246 Dormouse are considered likely to be absent from the Site. In addition, impacts on hedgerows during the construction phase of the Proposed Development will be limited to widening of existing hedgerow gaps, a small number of new gaps around

5-6 m wide and coppicing / removal of small sections for visibility splays. Such impacts would be very minor and very low risk in terms of killing / injury of individual dormice should they colonise the Site at some point.

Operation phase impacts

7.8.247 The Site does have some potential for dormouse to colonise in the long-term and this will be dependent on maintenance of continuous vegetation around and within the Site. Hedgerow loss is very minor / negligible, and there are breaks in habitat connectivity already within the Site. On this basis, there is unlikely to be an adverse impact on long-term habitat continuity for dormouse.

7.8.248 Should the Site be colonised by dormouse in the longer-term, then the operational phase is unlikely to give rise to an adverse impact on dormouse taking into account the measures for other species (such as control of lighting to benefit bats, for example).

7.8.249 Designed-in measures include the development of better connected, structurally more diverse and species-richer habitats including hedges and hedgerow verges. This would be achieved through new hedgerow planting, the enhancement of existing hedgerows and implementation of appropriate management. This will enhance the potential of the Site to support dormice in the long-term. However, no significant effects are anticipated.

Decommissioning phase impacts

7.8.250 The increase in hedgerows across the Site and the operational phase management of the hedgerows means that should the Site be colonised by dormouse by the time of decommissioning, they will have access to a well-connected and managed habitat network across the Site. There is unlikely to be a requirement for hedgerow removal during decommissioning, and therefore adverse effects on dormice (if they are present at that time) are unlikely to arise. At this stage it is considered likely that impacts on dormice at the decommissioning stage, if they present, would be **neutral and not significant**, although this is difficult to predict and would depend on the detail of decommissioning and the status of dormice at that time.

Further mitigation and enhancement

7.8.251 Operational phase management of hedgerows would benefit dormouse if they were to colonise the Site. An appropriate lighting strategy for all phases of development will be produced and implemented.

7.8.252 Prior to decommissioning a survey for dormice presence will be undertaken to enable the risk of decommissioning phase impacts arising (if at all) and for appropriate measures to be put in place to avoid impacts on dormice if necessary.

Residual effects

7.8.253 The potential of the Site to support dormice will increase and if dormice were to colonise the Site then the increase in habitat quality and extent would give rise to a long-term benefit for the species. The significance of this is not possible to determine at this stage. However, as there is no evidence of dormice on Site, no significant effects are expected at this stage.

Other SPI animals

Construction phase impacts

7.8.254 Habitats such as hedgerows, grassland field margins, woodlands and scrub, which are likely to be of the highest value to SPI mammal species that could be present at the Site, will largely be retained and incorporated into semi-natural habitat buffers as part of the Proposed Development. Only small amounts of suitable habitat are likely to be removed. Brown hare also use the arable fields, which will be converted to permanent grassland, which is also a suitable habitat for the species and therefore significant adverse impacts are unlikely.

7.8.255 Suitable aquatic and terrestrial habitats (drains, ditches, ponds, hedgerows, woodland, scrub and grassland field margins) for common toad will be retained and incorporated into semi-natural habitat buffers as part of the Proposed Development.

7.8.256 In the absence of mitigation, there is a minor risk of SPI animals being killed / injured during clearance of suitable habitats or being trapped in excavations during the construction phase.

7.8.257 There is a risk of accidental pollution spillage into retained watercourses / waterbodies which could cause adverse effects to common toad at the Site, and potentially off-site in connected watercourses.

7.8.258 The installation of security fencing may result in the fragmentation and the loss of access to foraging habitats for SPI mammals such as brown hare.

7.8.259 In the absence of further mitigation measures, potential **adverse effects during construction to SPI animals would likely be significant at the Site level**.

Operation phase impacts

7.8.260 The creation of new grassland, hedgerows, wetlands and other habitats will benefit a range of SPI species. Woody material felled during hedgerow section removal would be retained and used to create log / brash piles within habitat buffers; this will benefit to common toad and hedgehog by providing further areas of shelter and potential use for hibernation.

7.8.261 The proposed sheep grazed grassland and cessation of intensive arable farming within the Proposed Solar Areas is likely to benefit SPI animals, due to reduced levels of disturbance. Some fragmentation of habitat could arise in the absence of further mitigation. Operational phase impacts in the absence of mitigation are **neutral and not significant**.

Decommissioning phase impacts

7.8.262 The nature of the Site after decommissioning is not known, but following removal of infrastructure the Site will be no worse for other SPI mammals than it currently is.

7.8.263 In the absence of mitigation, there is a minor risk of SPI animals being killed / injured during clearance of suitable habitats or being trapped in excavations during the decommissioning phase, although the detail of what habitat will be affected is not known at this stage.

7.8.264 There is a risk of accidental pollution spillage into retained watercourses / waterbodies which could cause adverse effects to common toad at the Site, and potentially off-site in connected watercourses.

7.8.265 In the absence of further mitigation measures, and on the assumption that the interest of the Site for other SPI mammals is similar to its current interest, there is a possibility that adverse effects during construction could arise, and that these could **potentially be significant at the Site level**, although this is difficult to predict and would depend on the detail of decommissioning and the status of other SPI animals at that time.

Mitigation and enhancement

7.8.266 Mitigation measures proposed include precautionary methods of habitat clearance, escape measures from excavations and standard measures of pollution control.

Residual effects

7.8.267 Residual effects on SPI animals are considered likely to be **neutral and not significant**.

Invasive non-native species

7.8.268 During the field surveys, Canadian waterweed was observed within Mother Drain in the Eastern Biodiversity Mitigation Area. No other Invasive Non-Native Species (INNS) have been noted within the Site.

7.8.269 No works will be undertaken within the channel of the Mother Drain and the spread of Canadian pondweed is therefore highly unlikely to take place. Works within water will be limited to localised access crossings, at watercourse where no INNS have been recorded

7.8.270 Notwithstanding this, **Appendix 4.1 - Outline Construction Environmental Management Plan [EN010163/APP/6.3.4]** includes a section on the species measures to avoid accidental spread.

7.9 Summary of Impact Assessment

7.9.1 **Table 7.4** sets out a summary of the impact assessment for each ecological feature or group of features considered.

Table 7. 4 - Summary of impact assessment

Receptor	Evaluation	Construction phase impacts significance	Operation phase impacts significance	Decommissiong phase impacts	Assessment of significance level of residual effect
All SPA, SAC, Ramsar designated sites within the desk study area	International	Neutral / not significant	Neutral / not significant	Neutral / not significant	Neutral / not significant
All SSSI designated sites within the desk study area	National	Neutral / not significant	Neutral / not significant	Neutral / not significant	Neutral / not significant
LWS within and adjacent the Site within 100m	County	Adverse up to County level	Beneficial (possibly Site Level significance)	Potentially Adverse, County level but difficult to predict at this stage	Beneficial, Site Level
All other LWS within the search area	County	N/A	N/A	N/A	Scoped out
HPI habitats at the Site	Local	Adverse, Site level	Beneficial, Site Level	Potentially Adverse, Site level but difficult to predict at this stage	Beneficial, Site Level
Non-HPI Habitats	Site	N/A	N/A	N/A	Scoped out
Breeding birds assemblage	Local	Adverse, Site level	Neutral / not significant	Potentially Adverse, Site level but	Not significant, with potential

Receptor	Evaluation	Construction phase impacts significance	Operation phase impacts significance	Decommissiong phase impacts	Assessment of significance level of residual effect
(not skylark or barn owl)				difficult to predict at this stage	to be beneficial at Site level
Skylark	District	Adverse, District level	Beneficial, not significant	Potentially Adverse, Site level but difficult to predict at this stage	Adverse, Local level
Barn owl	Local	Adverse, Site level	Adverse, Site level	Potentially Adverse, Site level but difficult to predict at this stage	Beneficial, Local level
Wintering birds	Local	Adverse, Site level	Neutral / not significant	Potentially Adverse, Site level but difficult to predict at this stage	Neutral / not significant
Bats	Local	Adverse, Site level	Adverse, Site level	Potentially Adverse, Site level but difficult to predict at this stage	Beneficial, Local level
Badgers	N/A	N/A	N/A	N/A	N/A
Otter	Local	Neutral / not significant	Neutral / not significant	Likely to be Neutral, not significant but difficult to predict at this stage	Neutral / not significant
Water vole	Site (precautionary evaluation)	Adverse, Site level (if present)	Neutral / not significant	Likely to be Neutral, not significant if present but difficult to predict at this stage	Neutral, if present, with potential to be beneficial at Site level
Great crested newts	Site (precautionary evaluation)	Neutral / not significant	Beneficial (not significant) if present	Cannot be assessed at this stage	Beneficial (not significant) if present
Aquatic invertebrates	County (LWS drains only)	Adverse, County level	Neutral / not significant	Potentially Adverse, County level but difficult to predict at this stage	Beneficial, Local level
Terrestrial invertebrates	Site (precautionary evaluation)	Adverse, not significant	Beneficial (not significant)	Cannot be assessed at this stage	Beneficial, Site level
Reptiles	Site (precautionary evaluation)	Adverse, Site level (if present)	Neutral / not significant	Cannot be assessed at this stage	Neutral / possibly beneficial (not significant) if present
Fish	Local (on a precautionary basis)	Adverse, Local level	Beneficial, Site level	Potentially Adverse, Local level but difficult to predict at this stage	Neutral, potential to be beneficial at Site level
Dormouse	Assumed absent but may colonise. Not evaluated at this time	N/A	N/A	Likely to be Neutral, not significant but difficult to predict at this stage	Potential of Site will increase - beneficial if dormouse colonise the Site in the long-term
Other SPI animals	Site to Local (precautionary)	Adverse, Site level	Neutral / not significant	Potentially Adverse, Site level but difficult to predict at this stage	Neutral / not significant

7.10 Mitigation and Enhancement

7.10.1 In addition to the embedded measures that are summarised in this chapter, the impact assessment (set out in above in Section 7.8) gives rise to a series of further measures (both mitigation and enhancement). These are summarised in Section 7.7 and detailed along with each of the various ecological receptors in the 'assessment of impacts' section.

7.11 Cumulative and In-combination Effects

7.11.1 The shortlist of all potential cumulative developments has been reviewed and considered for potential cumulative ecological effects. This is shown in this chapter of the ES at **Table 7.5** below.

7.11.2 The only important ecological feature at the Proposed Development site for which an adverse residual effect is assessed is breeding skylark. With mitigation in place, the residual effect on skylark is assessed as adverse and significant at the Local level. "Local" is defined in this chapter as encompassing a radius of approximately 3 km around the Site.

7.11.3 Cumulative 'zone of influence' (ZoI) effects can arise when the zone of influence of two or more developments interacts with the same ecological receptor (for instance two developments within the range skylarks that use the Site, giving rise to an increased effect on those particular birds). A ZoI of Site plus 500 m has been identified for breeding skylarks. 500 m is the likely maximum distance from the Site that a nesting skylark within the Site would be expected to normally travel to forage. It is also the likely maximum distance from the Site that a skylark nesting outside of the Site would travel to make use of land within the Site to forage.

7.11.4 Cumulative effects can also take place on the resource (or population) of an ornithological feature within a given range arising, from two or more developments (for instance where the ZoI of two developments interact with the population of skylarks locally.) These wider potential cumulative effects have been assessed for projects and proposals up to 3 km distant from the Site. This is on the basis that residual effects of the Steeple project alone on breeding skylark are assessed as significant at the Local level, and beyond this Local level wider population effects are unlikely to be significant.

7.11.5 The types of project with potential for cumulative effects in the wider area are those within approximately 3 km, that effect a reasonable amount of arable or permanent

grassland under agricultural management. Schemes that do not meet this basic criteria are considered unlikely to give rise to cumulative effects on breeding skylarks.

7.11.6 Regarding in-combination effects, the process of determining the residual effects on ecological receptors has taken into account the processes and impacts considered in other chapters of this ES (hydrological, pollution, construction, and so on).

7.11.7 Should any significant in-combination effects occur, these will not be as a result of ecology, but a result of other factors considered, with ecology effects providing at worst an adverse local level contribution to any potential significant in-combination effects.

7.11.8 Effects such as area of land required, disturbance due to noise, changes in water quality, and loss of habitats associated with the Proposed Development and the impact ecological receptors is intrinsically included within the assessment approach of this Chapter. There are no significant adverse effects in this regard.

7.11.9 .

Table 7. 5 – Shortlist of Sites Considered for Cumulative Assessment

No.	Name of Applicant and Brief Description of Scheme	NSIP?	Reference Number	Approx. Distance from the Site	Consideration of Cumulative Ecological Effects
Tier 1 Sites					
1	Cottam Solar Project Limited Status - consented (Solar energy generation and battery storage in excess of 50MW.)	Yes	EN010133	3km to the south	Adverse effects on skylark are identified during the operational phase, significant at the Local level. There is potential for the residual effects of the Cottom Solar Project to give rise to a cumulative effect of greater that Local significance, although it is difficult to say with certainty that the cumulative effect would be as high as District Level significance. A cumulative effect of Local to District significance is concluded.
2	Gate Burton Energy Park Ltd Status - consented (Solar energy generating scheme in excess of 50MW)	Yes	EN010131	300m to the east	Gate Burton's ES concludes minor adverse to negligible effect on skylark which is not significant. There is potential for the residual effects of the Gate Burton Energy Park Project to give rise to an increased cumulative effect but given the conclusion of the Gate Burton assessment, the cumulative effect is not likely to increase beyond significance at the Local level.
3	Tillbridge Solar Limited Status - submitted (Solar energy generating scheme and battery storage in excess of 50MW)	Yes	EN010142	3km to the south	Tillbridge's ES concludes minor adverse to negligible effect on skylark which is not significant. There is potential for the residual effects of the Tillbridge Solar Project to give rise to an increased cumulative effect but given the conclusion of the Tillbridge assessment, the cumulative effect is not likely to increase beyond significance at the Local level.

No.	Name of Applicant and Brief Description of Scheme	NSIP?	Reference Number	Approx. Distance from the Site	Consideration of Cumulative Ecological Effects
4	West Burton C Power Station -EDF Energy (Thermal Generation) Limited Status- consented (Power station (peaking plant) capable of generating up to 299MW of electrical generation capacity)	Yes	EN010088	Adjacent to the north-east of the Site	No cumulative effect – no skylark habitat is affected by the project.
5	West Burton Solar Project Limited Status - consented (Solar energy generating scheme and battery storage in excess of 50MW)	Yes	EN010132	The cable corridor for this scheme traverses the Site.	Temporary impacts – habitat to be reinstated – no significant cumulative effect likely.
6	Heckington Fen Energy Park - Ecotricity (Heck Fen Solar) Limited Status – consented (Solar energy generating scheme and energy storage in excess of 50MW)	Yes	EN010123	55km to the south-east	Scoped out on distance
7	Bumblebee Solar Farm -Enso Green Holdings A Limited Status - consented	No	Bassetlaw District Council (BDC) ref: 22/00358/FUL	2.5km to the north	Three skylark territories recorded. Concluded that the breeding bird assemblage is unlikely to be adversely affected.

No.	Name of Applicant and Brief Description of Scheme	NSIP?	Reference Number	Approx. Distance from the Site	Consideration of Cumulative Ecological Effects
	(Solar energy generating scheme and energy storage under of 50MW)24/01358/FUL proposes to extend the cable route by continuing off Gainsborough Road into the West Burton Power station site to connect to the existing substation.		Associated BDC planning application reference: 24/01358/FUL		
8	Wood Lane Solar Farm -Elgin Energy ESCO LTD Status - consented (Solar energy generating scheme under 50MW)	No	BDC ref: 20/00117/FUL	Adjacent to the west	No ecological effects on skylark were identified
9	West Burton C Battery Storage -West Burton C Ltd Status - consented (Battery storage scheme up to 500MW)	No	BDC ref: 22/01713/FUL	Adjacent to the north	No ecological effects on skylark were identified
10	Site clearance (demolition) of West Burton A Power Station – EDF Status - consented	No	BDC ref: 23/00485/DEM	Adjacent to the north	No ecological effects on skylark were identified
11	Sturton le Steeple Quarry -Lafarge Aggregates Limited (now being implemented by Aggregate Industries)	No	Nottinghamshire County Council	Adjacent to the north-east	The Sturton le Steeple Quarry Environmental Statement has been reviewed. Based on 2005 survey for breeding birds, it concludes a minor adverse effect on birds that are not significant. Notwithstanding this, 54 skylark territories were recorded. It is

No.	Name of Applicant and Brief Description of Scheme	NSIP?	Reference Number	Approx. Distance from the Site	Consideration of Cumulative Ecological Effects
	Status – consented/Access track under construction (Sand and gravel extraction).		(NCC) extant ref: V/4386		assumed that a proportion of these would be displaced although the extent of mitigation specifically for skylark is not clear. On the assumption that mitigation for skylarks would be required by the minerals planning authority, an adverse effect, significant at the level of the sand and gravel site is assumed. On this basis a cumulative effect would be expected, but it would be unlikely to increase the effect beyond the Local level of significance.
12	Bole Ings Ash Disposal Site - EDF Status – operational/under construction (Full ash recovery at the West Burton Power Station site, and use of ash processing equipment).	No	NCC ref: F/3581, and V/4079 (variation of conditions 11, 13, and 53 of planning permission 1/18/00234/CDM)	2km to the north of the Site	No ecological work appears to have been undertaken. Site appears from aerial images to be sub-optimal for skylark.
13	Commercial Development at land at Skellingthorpe Road - Stirlin Developments Status - consented (Outline planning application for the material change of use of land, erection of buildings and associated development for employment uses falling within any of use classes B1 Business, B2 General Industrial	No	West Lindsey District Council (WLDC) ref: 140696	11.2km to the south-east	Cumulative effects scoped out due to distance.

No.	Name of Applicant and Brief Description of Scheme	NSIP?	Reference Number	Approx. Distance from the Site	Consideration of Cumulative Ecological Effects
	and B8 Storage and Distribution and associated infrastructure)				
Tier 2 Sites					
14	New 400 kilovolt (kV) electricity transmission connection - North Humber to High Marnham -National Grid Electricity Transmission Status - proposed (Reinforcement of the National Grid transmission network (i.e., a new ~90km transmission line)).	Yes	EN020034	Overhead lines are currently proposed to traverse the western portion of the Site.	Information is limited to scoping of the whole project and the response of PINS – no impact assessment has yet been undertaken and no information is available that relates to the part of the scheme that interacts directly with the Proposed Development. However, the scoping document identifies the potential for the overhead transmission line (OHL) to affect breeding and non-breeding birds. The location of the power line is not yet fixed and the route corridor is currently broad. Breeding bird surveys in the western part of the Steeple Site that coincides with the route corridor identify a relatively limited range of breeding birds, mainly field edge and ground-nesting passerines such as skylark. The latter will be largely displaced as breeding birds by the Proposed Development. The chances of significant levels of collision with the OHL for passerine birds is low due to displacement and because foraging and display in most of these species will not take them into the airspace the line will pass through. On the basis of available information for the OHL proposal, and assuming the implementation of standard OHL mitigation (to minimize collision) a significant cumulative effect on breeding birds is considered unlikely.

No.	Name of Applicant and Brief Description of Scheme	NSIP?	Reference Number	Approx. Distance from the Site	Consideration of Cumulative Ecological Effects
					Non-breeding bird surveys of the same area of the Steeple Site recorded three water birds at potential risk of collision with power transmission structures. These are black-headed, lesser black-backed and herring gulls. However, the Proposed Development is unlikely to give rise to an appreciable adverse effect alone on gull species (localized displacement of foraging / loafing birds is likely to occur) and there is therefore unlikely to be a significant cumulative effect. The implementation of reasonable mitigation as part of the OHL project (to minimize collision) would further reduce the likelihood. A limited range of higher-flying non-breeding birds was also recorded in this area (survey as fieldfare and starling) and these may be a higher risk of collision because of their flight height at certain times. However, an appreciable adverse impact on these species from the Proposed Development alone is not likely, and the populations of these species are very large, and there is therefore unlikely to be a significant cumulative effect. The implementation of reasonable mitigation as part of the OHL scheme (to minimize collision) will further reduce the likelihood. Increased predation of small birds by perching corvids and certain raptors is also identified as a potential issue, but this is scoped into the OHL assessment only for designated sites and on this basis is unlikely to give rise to a significant cumulative effect.

No.	Name of Applicant and Brief Description of Scheme	NSIP?	Reference Number	Approx. Distance from the Site	Consideration of Cumulative Ecological Effects
15	Great North Road Solar and Biodiversity Park -Elements Green Trent Limited Status - proposed (Solar energy generating scheme and battery storage in excess of 50MW)	Yes	EN010162	13km to the south	Scoped out given distance from Site
16	One Earth Solar Farm Status - proposed (Solar energy generating scheme and battery storage in excess of 50MW)	Yes	EN010159	8km to the south	Scoped out given distance from Site
17	Land at Apleyhead Junction A1, Worksop - Caddick Developments Status - submitted (Use Class B8 Development (Logistics and Distribution))	No	BDC Policy ST6 Appleyhead Junction BDC ref: 24/01186/FUL	12km to the south-west	Scoped out given distance from Site.

7.12 Summary

Introduction

7.12.1 This chapter provides an assessment of the potential impacts and effects of the Proposed Development on ecology and nature conservation during the construction, operational, and decommissioning phases.

7.12.2 It includes assessment of potential direct and indirect effects on sites designated for nature conservation, important habitats, and protected species onsite and offsite. Habitat creation, retention of trees and buildings, avoidance of sensitive habitat, and other measures have been incorporated into the design of the scheme to avoid and minimise significant ecological effects and to provide ecological enhancement ("designed-in" measures). The chapter also considers further mitigation and enhancement measures where these are needed; as well as identifying where long-term management will be required to ensure mitigation and enhancement.

7.12.3 Extended habitat survey including aquatic habitats have been completed as have breeding and wintering bird surveys, bat activity, and ground level assessments of on-site trees and buildings for bat and barn owl, badger, water vole, otter aquatic invertebrate and great crested newt surveys .

Baseline Conditions

7.12.4 The Site extends to ca. 888 ha and is set within an agricultural landscape in the Trent Valley. It is primarily large arable fields with boundary hedgerows and individual trees. There is a network of ditches and drains and several ponds and waterbodies. There are occasional small woodland blocks, grassland pasture fields, and agricultural buildings.

7.12.5 The Site does not coincide with any internationally or nationally statutory designated sites although Clarborough Tunnel SSSI is 40 m west of the Western Biodiversity Mitigation Area. Five Local Wildlife Sites (LWS) are within the Site, and two LWS are within 100 m of the Site.

7.12.6 Breeding bird activity is widespread across the Site. There is a typical breeding bird assemblage for the habitats and location. Most recorded bird species of conservation concern breed throughout the county and are 'common' or 'fairly common' within Nottinghamshire. Skylark breeds on open habitat across the Site

and barn owl is also present – these two species are considered separately in this chapter.

7.12.7 There is also a typical wintering bird assemblage, with the parts of the Site closer to the River Trent (particularly the wetland and adjacent farmland habitats in the Eastern Biodiversity Mitigation Area) supporting higher species diversity and numbers of birds, typically waders and waterbirds, as well as hunting birds of prey

7.12.8 Most of the Site is of limited value for bats. The woodlands, hedgerows, dense scrub, waterbodies and watercourses provide more suitable bat foraging and commuting habitat and there is habitat connectivity with the surrounding landscape in all directions. Bat activity levels are typical for the habitats and the open arable fields do not appear to be regularly used for foraging or commuting. Most species are widespread in Nottinghamshire or have been recorded infrequently. It is possible that the Site supports bat roosts within buildings or trees, but no evidence has been recorded that suggests significant roosts are present.

7.12.9 Much of the Site is of limited value for otters and although most of the Site's watercourses and ditches could be used by otter, there is only limited evidence of this. There are historical records of water vole at the Site, and some of the drains and ditches have suitable habitat. No water vole were recorded at the Site during field surveys, but it is possible that water vole may be present at very low densities.

7.12.10 No great crested newts have been recorded on the Site. Some offsite ponds within 250 m could support great crested newts. Regular tilling and spraying give rise to few opportunities for great crested newts within 250 m of the offsite ponds, apart from small areas of grassland pasture, narrow strips of hedgerows and grassland field margins. If the offsite ponds did support newts, the distance to construction works means that an adverse effect on newts is not likely.

7.12.11 Aquatic invertebrate survey has been undertaken in targeted watercourses including component parts of LWSs with aquatic invertebrate interest and other potentially suitable wet ditches. The surveyed watercourses support moderately diverse assemblages of aquatic invertebrates, but fewer notable species were recorded in the surveyed sections of LWS watercourses than were listed on the LWS citation. The other surveyed watercourses were not identified as supporting notable species or assemblages.

7.12.12 Terrestrial invertebrate interest is assessed on a habitat quality and desk study basis as likely to be limited. Reptiles are also assessed on a habitat quality and desk

study basis and are likely to be of limited conservation interest if/where present. Fish have not been surveyed but have been considered on a habitat quality basis, and taking into account desk study information, as likely to be of limited conservation interest. Dormouse are present offsite to the south but are assumed to be absent (but with potential to colonise the Site as time passes). Other faunal species of principal importance are considered, and on a precautionary basis are assumed to be present in low numbers for the purposes of mitigation.

Likely Significant Effects

7.12.13 Unmitigated construction phase impacts are likely to include:

- Habitat loss (agricultural land, minor loss of hedgerow and grassland field margins); temporary loss / disturbance (e.g. for laydown areas and compounds; hedgerow and field margins where cut and cover cabling is used); habitat damage / degradation (to retained features such as trees and hedgerows adjacent to works, from soil compaction or damage from vehicles).
- Habitat gains (e.g. conversion of arable land underneath solar arrays to permanent grassland, creation or enhancement elsewhere such as woodland and hedgerows).
- Disturbance of species (within and adjacent to the Site, from noise, light, vibration and the presence of vehicles and people; damage, destruction, killing or injuring (for instance badger setts and active bird nests).
- Contamination / pollution (potential ground, water and air pollution from spillages, dust and vehicles).

7.12.14 Unmitigated operational phase impacts are likely to include:

- Fragmentation (of habitats and species populations); barrier effects (to certain species from security fencing / installation of built infrastructure).
- Disturbance of species (within and adjacent to the Site, from noise, light and the presence of vehicles and people); changes to foraging and commuting behaviours .
- Beneficial effects (from increased habitat diversity and reduction of pesticide application as the Site transitions from intensive arable

management to less intensive grazing. This would benefit a range of aquatic and terrestrial invertebrate species and other species that prey upon them).

7.12.15 Potential impacts during the decommissioning are very difficult to assess in most cases. This is because the future state of the Site and the habitat and faunal interest of the Site cannot be predicted without making certain assumptions, and nor can factors such as timing of works and extent of habitat. Impacts on some species cannot be predicted at this stage; for other receptors the potential significance of impacts (in some cases based on stated assumptions) has been considered and qualified where necessary. Notwithstanding this, the source of impacts (if they arose) would be expected to be similar to those at construction phase (albeit access / road infrastructure will already be in place so no impacts arising from construction of such infrastructure would arise). Removal of solar panels and associated infrastructure will cause temporary habitat disturbance (primarily of permanent grassland) as well as disturbance of some of the fauna in a similar way that disturbance impacts will arise during the construction phase. The Site's biodiversity baseline will change during the operational phase and the Site will support a modified range of habitats and species requiring consideration. Post-construction ecological monitoring is set out in **Appendix 7.14 Outline Landscape Ecological Management Plan [EN010163/APP/6.3.7]** and will inform decommissioning by providing updates to the Site's ecological baseline

Mitigation and Enhancement

7.12.16 Mitigation measures include clear span structures on the majority of wet ditches / drains where new crossings are required, and where new culverted crossings are proposed they will be on seasonally wet ditches of lower ecological value; a lighting strategy for all phases of development; measures for pollution prevention and dust management (incorporated into **Appendix 4.1 - Outline Construction Environmental Management Plan [EN010163/APP/6.3.4]** for the construction phase and **Appendix 4.2 - Outline Decommissioning Plan [EN010163/APP/6.3.4]** for the decommissioning phase); timing of works to avoid impacts, for example favouring vegetation clearance outside of the bird nesting period; precautionary methods of working to avoid disturbance, damage, killing / injury (such as pre-works check, careful timing and precautionary vegetation clearance methods in areas suitable for reptiles and great crested newt); securing and implementing protected species licences as required, for badgers; measures in the Western and Eastern Biodiversity Mitigation Areas to mitigate impacts on skylark.

7.12.17 Enhancement measures include habitat creation in the Eastern Biodiversity Mitigation Area, such as wildflower grassland, species-rich hedgerows, scrub, and ponds and ditches; habitat improvements such as infilling of gaps in hedgerows, and improvements to plant species diversity by additional planting / seeding in retained habitats; improved management of retained habitats, such as grasslands within the nearby LWS; management of hedgerows to favour breeding birds and to increase their potential for dormouse; management of ditches and woodlands to improve their biodiversity value; installation of other wildlife features such as bat and bird boxes.

Cumulative and In-Combination Effects

7.12.18 Cumulative effects on skylark have been identified for

- Cottam Solar Project – cumulative effect of Local to District significance is concluded.
- Gate Burton Energy Park Ltd - the cumulative effect is not likely to increase beyond significance at the Local level.
- Tillbridge Solar Project - the cumulative effect is not likely to increase beyond significance at the Local level.

Conclusion

7.12.19 With mitigation in place, no significant adverse effects on designated nature conservation sites or important habitats are likely. Most species-impacts are scoped out, or are likely to be neutral, not significant, or slightly beneficial in the long-term. Residual effects on skylark of the Proposed Development are assessed as adverse and locally significant. Cumulative effects on skylark are assessed as adverse and significant at the Local to District level.

Appendices

Appendix 1: Table 7. 6 - Buffer zones and stand-off distances from ecological features

Ecology Feature	Recommended minimum semi-natural habitat buffer[44]	Rationale
Hedgerow without ditch	5 m or to the extent of the existing grassland field margin, whichever is larger	Provides a sufficient stand off to allow for ecological enhancement and maintain habitat connectivity and allow for maintenance of boundary features. Buffer zones for specific trees should be led by shading and tree root zone protection. This should be advised by an arboriculturist
Hedgerow with ditch	8 m or to the extent of the existing grassland field margin, whichever is larger	A wider buffer zone compared to other hedgerows is proposed to provide stronger protection to features of higher value and/or provide robust biodiversity benefits in terms of the variety of habitats to be promoted and habitat connectivity.
Woodland and traditional orchard	15 m	15 m is the distance Natural England currently promotes for buffer zones to ancient woodland sites (no ancient woodland is present at or adjacent the Site). It is recommended that this is adopted for the woodland at the Site. Advice should be sought from the arboriculturist who may advise that a larger buffer is appropriate, in which case that should be applied.
Mature trees	Variable depending on shade polygon, canopy and need to protect root zone	Buffer zones for specific trees should be led by shading and tree root zone protection. This should be advised by an arboriculturist.
Wet ditches, streams/rivers	10 m	EA / drainage board typically requires 9 m from top of bank for maintenance purposes. The Water vole Mitigation Handbook proposes 5 m from top of bank, but acknowledges it may need to be more depending on nature of the works and extent of burrowing. No guidance is available from Natural England on otter. Otter mitigation guidance from Northern Ireland recommends 10 m buffer zones either side of the watercourse. As such it is proposed the outer buffer zone be implemented if possible.
Dry ditches	5 m	Provides a sufficient stand off to allow for ecological enhancement and maintain habitat connectivity and allow for maintenance of boundary features.
Pond that supports Great Crested Newt	50 m	50 m is recognized as the core terrestrial habitat for GCN. Note GCN can and will travel further than this so

[44] Where the buffer relates to a liner feature (i.e., hedgerow, ditch, watercourse) the buffer will be applied to both sides.

Ecology Feature	Recommended minimum semi-natural habitat buffer[44]	Rationale
(GCN) or presence / likely absence has not been confirmed.		this buffer alone would not necessarily avoid the need for a licence for construction purposes, but would protect the core terrestrial habitat area.
Ponds (GCN absent)	10 m	Provides a sufficient stand off to allow for ecological enhancement and allow for maintenance.
Local Wildlife Site (LWS) habitat	15m	A wider buffer zone is proposed to provide stronger protection to features of higher value and opportunities to create / enhance habitats that would complement the LWS and improve ecological connectivity.
Clarborough Tunnel SSSI (notified on account of its species-rich calcareous grassland). Located off-site but adjacent the south-west boundary.	50 m	A wider buffer zone is proposed to provide stronger protection to features of higher value and opportunities to create / enhance habitats that would complement the SSSI and improve ecological connectivity.
Badger Sett	30 m	This is the widely accepted distance from a badger sett beyond which construction is unlikely to cause damage to setts or result in disturbance to badgers. Certain works can be accommodated inside this buffer, such as vegetation management and small-scale engineering work, but this would need to be assessed for each case and each sett. The 30m is a starting point.
Barn owl: trees / buildings with confirmed barn owl presence	Dependent upon species and a case-by-case assessment will be needed.	The Wildlife and Countryside Act 1981, Schedule 1 list bird species (including barn owl) for which disturbance of birds on nests, raising young or with dependent young is an offence. Disturbance from construction activity may affect these species at varying distances depending on the species and the work being undertaken. The buffer would also need to consider the type of development feature to be installed (solar arrays, access roads, battery storage etc) as some are likely to generate greater levels of disturbance than others.
Barn owl: trees / buildings with barn owl suitability but presence not confirmed (this includes all nearby offsite	15 m	This is a precautionary buffer. However, disturbance from construction activity may affect these species at varying distances depending on the species and the work being undertaken. The buffer would also need to consider the type of development feature to be installed (solar arrays, access roads, battery storage

Ecology Feature	Recommended minimum semi-natural habitat buffer[44]	Rationale
buildings regardless of suitability [not yet assessed] but not offsite trees as yet)		etc) as some are likely to generate greater levels of disturbance than others.
Bats: buildings with roost suitability but presence not confirmed.	15 m	This is a precautionary buffer. However, disturbance from construction activity may affect these species at varying distances depending on the species and the work being undertaken. The buffer would also need to consider the type of development feature to be installed (solar arrays, access roads, battery storage etc) as some are likely to generate greater levels of disturbance than others.
Bats: tree with PRF-M (high roost suitability)	15 m	Buffer zones for specific trees should be led by shading and tree root zone protection. This should be advised by an arboriculturist. 15 m would be a minimum buffer applied to these features. This is a precautionary buffer. However, disturbance from construction activity may affect these species at varying distances depending on the species and the work being undertaken. The buffer would also need to consider the type of development feature to be installed (solar arrays, access roads, battery storage etc) as some are likely to generate greater levels of disturbance than others.
Bats: tree with PRF-I (low roost suitability)	10 m	Buffer zones for specific trees should be led by shading and tree root zone protection. This should be advised by an arboriculturist. 10 m would be a minimum buffer applied to these features. This is a precautionary buffer. However, disturbance from construction activity may affect these species at varying distances depending on the species and the work being undertaken. The buffer would also need to consider the type of development feature to be installed (solar arrays, access roads, battery storage etc) as some are likely to generate greater levels of disturbance than others.
Other retained habitat features	Case by case, Likely a 2m buffer to ensure habitat is retained fully and not damaged	These are habitats with a 'distinctiveness' of 'medium' or higher in the Biodiversity Gain Assessment, and therefore require consideration to avoid or minimise loss in line with biodiversity principals. Most will not need buffers beyond the retention of the habitat itself.

Appendix 2: Table 7. 7 - Zone of Influence Table

Receptor	Zone of Influence	Rationale
International level designated sites (SPA, SAC, Ramsar) and candidate / potential sites	30 km	Correspondence with NE indicates 30 km is an appropriate zone for HRA, but no effects are likely to arise on international designated sites within this ZoI.
National level designated sites (SSSI)	1 km or otherwise coincidence with NE SSSI Impact Risk Zone	With measures in place, significant hydrological / air quality impacts unlikely to extend beyond 1 km. Other effects are not likely to impact SSSIs beyond the Site boundary and its immediate surrounds.
Local level designated sites (LWS)	1 km	With measures in place, significant hydrological / air quality impacts unlikely to extend beyond 1 km. Other effects are not likely to impact LWS beyond the Site boundary and its immediate surrounds.
Terrestrial habitats	The Site and immediate surrounds	With measures in place, significant effects unlikely beyond this zone due to the type of development and the expected construction, operational and decommissioning effects.
Aquatic habitats	1 km	With measures in place, hydrological impacts unlikely to be significant beyond 1 km.
Breeding birds assemblage (not including barn owl or skylark)	The Site and up to 500 m for the assemblage as a whole	With measures in place the ZoI will be limited to the Site and its immediate surrounds. 500m takes into account the likelihood of some nesting species at the Site foraging off-site and vice-versa. Although some individual species will range further than this, it is a precautionary distance for most species.
Skylark	The Site and up to 500 m	With measures in place the ZoI will be limited to the Site and its immediate surrounds. 500m takes into account the likelihood of skylark nesting at the Site foraging off-site and vice-versa. This is a precautionary distance. *Note that the proposals give rise to a residual effect that is significant at a local level and a precautionary approach is to be taken to the identification of other schemes for the cumulative assessment, so that local greenfield schemes (within 3 km) that impact suitable skylark habitat will be considered.*
Barn owl	The Site and immediate surrounds	With measures in place the ZoI will be limited to the Site and its immediate surrounds.

Receptor	Zone of Influence	Rationale
Wintering birds	The Site and immediate surrounds	With measures in place the ZoI will be limited to the Site and its immediate surrounds.
Bats - roosts	The Site and immediate surrounds	With measures in place the ZoI will be limited to the Site and its immediate surrounds.
Bats – foraging / commuting	The Site and immediate surrounds	With measures in place the ZoI will be limited to the Site and its immediate surrounds.
Badgers	The Site and immediate surrounds	With measures in place the ZoI will be limited to the Site and its immediate surrounds.
Otter	The Site and immediate surrounds	With measures in place the ZoI will be limited to the Site and its immediate surrounds.
Water vole	The Site and immediate surrounds	With measures in place the ZoI will be limited to the Site and its immediate surrounds.
Great crested newts	The Site and immediate surrounds	With measures in place the ZoI will be limited to the Site and its immediate surrounds.
Aquatic invertebrates	The Site and immediate surrounds	With measures in place the ZoI will be limited to the Site and its immediate surrounds.
Terrestrial invertebrates	The Site and immediate surrounds	With measures in place the ZoI will be limited to the Site and its immediate surrounds.
Reptiles	The Site and immediate surrounds	With measures in place the ZoI will be limited to the Site and its immediate surrounds.
Fish	The Site and immediate surrounds	With measures in place the ZoI will be limited to the Site and its immediate surrounds.
Dormouse	The Site and immediate surrounds	With measures in place the ZoI will be limited to the Site and its immediate surrounds.
Other SPI animals	The Site and immediate surrounds	With measures in place the ZoI will be limited to the Site and its immediate surrounds.

Appendix 3: Table 7. 8 - Summary of written consultation responses from the Scoping Opinion with reference to Ecology

Consultee	Summary of comment from Scoping Opinion	Applicant response
Planning Inspectorate	Dormouse survey. *'The Scoping Report states that the Proposed Development Site has poor habitat connectivity to known dormouse populations.* *Table 8B.1 of the Habitat Survey (Appendix 8B) indicates that woodlands (priority and non-priority) and 88 km of hedgerows are within and/or adjacent to the Proposed Development Site.* *The Inspectorate would expect to see this matter considered as part of the assessment or evidence provided to conclude that this species is absent from the Proposed Development Site. This could include information confirming that no suitable habitat is present through relevant habitat surveys or further evidence to support the assertion that there is poor habitat connectivity to existing dormouse populations by identifying the location of the nearest populations and providing confirmation of their absence in local records. Effort should be made to gain agreement on this matter with relevant consultation bodies.'*	Consideration of the potential presence of dormouse is presented in the ES. It is considered that dormouse is unlikely to be present at the Site at this time although further consultation to clarify more detail about the spread of dormouse locally has been undertaken . Scoping out of survey has been agreed in principle with Nottinghamshire County Council and Bassetlaw District Council ecologists during an online meeting on 7 November 2024. Further consultation regarding dormouse has taken place during online meetings with Nottinghamshire County Council and Bassetlaw District Council ecologists during online meetings (4 March 2025) and Nottinghamshire Wildlife Trust (13 February 2025). It was agreed that the presence of dormouse at the Site is currently unlikely, and that surveys could be scoped out.
Planning Inspectorate	Study Area – Zone of Influence (ZoI). *'The ES should provide information explaining how the relevant ZoI for each receptor has been determined for the assessment.* *The ES should ensure the study area reflects the project's ZoI rather than being based on a fixed distance. Effort should be made to agree the study area(s) with relevant consultation bodies and with reference to relevant guidance.'*	Agreement on Zones of Influence has been agreed with Nottinghamshire County Council and Bassetlaw District Council ecologists during online meeting on 4 March 2025. A table presenting the agreed Zones of Influence is provided in **Table 7.7, provided in Appendix 2**.

Consultee	Summary of comment from Scoping Opinion	Applicant response
Planning Inspectorate	Bats – study area. *'The ES should justify how this search area applies to all potentially affected bat species and make effort to agree the study area and approach to assessment with relevant consultation bodies.'*	Agreement on the approach to study area has been sought with relevant consultees during scoping and a subsequent online meeting on 7 November 2024 with Nottinghamshire County Council and Bassetlaw District Council ecologist. Further details of the Study Areas is presented in **Table 7.1**.
Planning Inspectorate	Bat – activity. *'The ES should justify why the Applicant concludes that significant effects are unlikely for bats beyond the proposed Order Limits. Agreement on the study area should be sought from NE and relevant consultation bodies.* *The ES should consider the potential for impacts on international sites designated for bats within a 30km study area or provide evidence to demonstrate the absence of a LSE.'*	Agreement on the approach to study area has been sought with relevant consultees during scoping and a subsequent online meeting on 7 November 2024 with Nottinghamshire County Council and Bassetlaw District Council ecologist. Further details of the Study Area is presented in **Table 7.1.** There are no international sites designated for bats within 30km of the Site.
Planning Inspectorate	Great crested newts (GCN). *'The ES should include information to demonstrate whether the Proposed Development is located within a risk zone for GCN and whether the Proposed Development is likely to have a significant effect on GCN.* *If the Applicant intends to obtain a licence through the Natural England (NE) District Level Licensing (DLL) scheme for GCN any licence requirements should be discussed with NE and agreed prior to completion of the ES, if possible.'*	A full assessment of the potential impacts of the Proposed Development on GCN, and the need for further mitigation is included in the ES.

Consultee	Summary of comment from Scoping Opinion	Applicant response
Planning Inspectorate	Wintering bird surveys post March 2024. *'Dependent on the timescales between scoping and submission of the ES, the Applicant should consider whether surveys are current, and should agree the scope and timing of surveys with relevant consultation bodies.'*	No further wintering bird surveys were undertaken during the winter of 2024 / 25 on the basis that the previous survey work is considered to be robust and did not identify any activity that indicates the presence of functionally linked land that could be affected by the Proposed Development. The need for further wintering bird surveys was scoped out in agreement with Nottinghamshire County Council and Bassetlaw District Council ecologists during an online meeting on 7 November 2024. .
Planning Inspectorate	Functionally linked land - European sites / internationally designated sites. *'The breeding and wintering bird surveys undertaken in 2023/24 have not identified any significant activity at the Proposed Development Site from qualifying bird species of the identified European sites.* *The initial assessment is that the Proposed Development Site is not functionally linked to the internationally designated sites and the Applicant considers that it is highly unlikely that any significant adverse effects will occur indirectly to statutory sites at any phase of the Proposed Development.* *The ES should provide evidence to demonstrate that no potential significant effects are likely for any qualifying bird species or key features of internationally designated/European sites through functionally linked land.'*	Consideration of functionally linked land is provided within the ES and **Report to Inform a Habitats Regulations Assessment [EN010163/APP/ 5.5.]**. The breeding and wintering bird surveys undertaken in 2023 / 24 have not identified any significant activity at the Site from qualifying bird species of the European sites. The assessment is that the Site is not functionally linked to the internationally designated sites.
Planning Inspectorate	Disturbance to breeding birds during construction. *'The ES should assess disturbance impacts to bird species breeding in field boundaries during construction and explain how existing hedgerows will be retained. The ES should outline the measures to be taken to mitigate disturbance impacts in any removal of existing field boundary habitats.'*	Consideration of disturbance impacts to breeding birds during construction is provided within the ES.

Consultee	Summary of comment from Scoping Opinion	Applicant response
Planning Inspectorate	Veteran trees. *'Veteran trees are identified in the Habitat Survey (Table 8B.1, Appendix 8B) under the heading of 'potential irreplaceable habitats'. The ES should identify and assess impacts to veteran trees where significant effects are likely to occur. Where mitigation measures are required, the ES should describe these measures and signpost where they are secured through the DCO.'*	Potential veteran trees at the Site are retained and protected within the Proposed Development. The **Appendix 6.5 - Arboricultural Impact Assessment [EN010163/APP/6.3.6]** provides further information.
Planning Inspectorate	Lighting disturbance – mitigation. *'The ES should assess impacts on ecological receptors from lighting where significant effects are likely to occur, and demonstrate measures taken to avoid disruption of ecological corridors such as hedgerows that provide flight-lines for bats.* *The ES should clearly explain how the measures will avoid or limit lighting impacts on ecological receptors.'*	Consideration of lighting impacts and mitigation is provided within the ES for various features such as bats and barn owls.
Planning Inspectorate	Potential mitigation and enhancement measures – landscape and ecological management. *'The ES should be supported by a draft landscape and ecological management and monitoring plan and set out how the Applicant intends to deliver biodiversity enhancements.* *The ES should distinguish between measures intended to avoid or reduce the potential for LSEs, and those which have been identified for enhancement only. The ES should state how these measures will be secured through the DCO.'*	The Ecology chapter of the ES includes details of mitigation and enhancement measures and an Outline LEMP is included (**Appendix 7.14 Outline Landscape Ecological Management Plan [EN010163/APP/6.3.7]**).
Planning Inspectorate	Mitigation - vegetation disturbance. *'The ES should explain how phasing and methods of vegetation clearance will avoid disturbance of protected species. Relevant measures should be secured by a DCO requirement.'*	Consideration of impacts and mitigation is provided within the ES for various features such as nesting birds and reptiles. .
Planning Inspectorate	Mitigation - invasive non-native species. *'The Inspectorate notes the potential for impacts resulting from the spread of invasive species during construction and decommissioning of the Proposed Development. Any necessary eradication and/or control measures should be detailed in the ES and any LSEs assessed.'*	Consideration of invasive non-native species impact and mitigation is provided within the ES.

Consultee	Summary of comment from Scoping Opinion	Applicant response
Planning Inspectorate	Horizontal Directional Drilling (HDD) – impacts on aquatic species. *'Trenchless HDD methods are likely to be used for laying any cables beneath existing watercourses. This has potential to cause impacts on aquatic species due to breakout from drilling fluids and vibration within the riverbed. The Inspectorate notes that the Applicant proposes to submit a drilling fluid breakout plan.* *The ES should include a description of the sensitivity of relevant watercourses and any seasonal constraints on such crossings, assessing LSEs on riverine species where they are likely to occur from such impacts.* *Potential impacts from noise, vibration, lighting or sediment breakout from the Proposed Development on aquatic species should be assessed.'*	Noted. HDD methods are provided in the Outline CEMP.
Planning Inspectorate	New bridges or culverts. *'The Scoping Report states that any new bridges and culverts will be designed to ensure flow capacity is retained and access to watercourse for maintenance is retained. No information is provided in relation to the scale and dimensions of these structures or detail of the nature of any associated construction works.* *The ES should describe where bridge/ culvert structures are proposed and demonstrate that there is sufficient detail regarding the design as to inform a meaningful assessment of effects on watercourse hydraulics and ecology.'*	Crossings of watercourses are kept to a minimum, and where they are necessary they will be clear span to mitigate potential impacts. These measures are designed-in and included in the ES. There are three proposed new culverted crossings of ditches which are seasonally wet and only support shallow amounts of water on a temporary basis. The installation of culverts at these locations is not considered to cause a significant impact to any ecology features.
Planning Inspectorate	Dust impacts on receptors. *'The ES should include an assessment of whether the Proposed Development would result in LSE on ecology as a result of dust emissions to air during construction and decommissioning, or demonstrate agreement with the relevant consultation bodies and the absence of LSE.'*	Consideration of impacts from dust is provided for various features in the ES in the Ecology and Air Quality chapters. The assessment indicates that standard construction methods to control dust (and other pollutants) are likely to be adequate to mitigate adverse effects to ecology features.

Consultee	Summary of comment from Scoping Opinion	Applicant response
Planning Inspectorate	Security fencing. *'Security fencing is proposed around the operational areas of the site. The ES should assess any impacts associated with the security fencing on ecological receptors where significant effects are likely to occur. Any necessary mitigation measures, such as mammal gates, should be described'.*	Consideration of impacts and mitigation such as appropriate sized gaps in fencing are provided within the ES for various features such as badgers and brown hare.
Planning Inspectorate	Confidential Annexes. *'Public bodies have a responsibility to avoid releasing environmental information that could bring about harm to sensitive or vulnerable ecological features.* *Specific survey and assessment data relating to the presence and locations of species such as badgers, rare birds and plants that could be subject to disturbance, damage, persecution, or commercial exploitation resulting from publication of the information, should be provided in the ES as a confidential annex.'*	Noted. Confidential baseline reports to the ES for badger and barn owl have been provided. Information within the Ecology chapter on these species has been provided that excludes details that may allow for their locations to be identified at the Site.
Environment Agency	Fish. *'The Catchwater Drain and Mother Drain are both hydrologically connected to the River Trent and the Oswald Beck may provide suitable habitat for fish. It is known the European eel inhabit such ditches/drains and small watercourses. European eel are listed as critically endangered on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species, they are listed as a species of principal importance under Section 41 of the Natural Environment and Rural communities (NERC) Act 2006. They are also protected under The Eels (England and Wales) Regulations 2009. It is recommended that fish surveys are conducted on ditches/drains across the site. The results should then form part of the baseline data for the EIA.'* And *'The effects on fish have only been scoped in as being neutral and with beneficial effects overall. Activities during construction, operation and decommissioning have the potential to negatively impact fish. Such impacts may include damaging fish spawning habitat from increased surface runoff of pollutants and fine sediment, behavioural impacts on fish from noisy construction activities and loss of habitat from waterbody crossings. Therefore, the potential impacts on fish from construction, operation and decommissioning should be scoped in and be assessed in the ES.* *Mitigation should be included within the Construction Environmental Management Plan.'*	The presence of European eel and other fish is assumed within suitable watercourses and waterbodies at the Site. Designed-in measures will mitigate for most potential adverse effects (i.e., retention of watercourses, habitat buffers, clear span bridges), and residual effects can likely be managed by further mitigation (e.g., appropriate working methods during construction). Assessment and mitigation for fish is included in the ES. On this basis, LSE on fish are unlikely and surveys for fish have not been undertaken and are not proposed.

Consultee	Summary of comment from Scoping Opinion	Applicant response
Environment Agency	Legislation. *'The Salmon and Freshwater Fisheries Act 1975 has not been included in the list of legislation that is relevant to biodiversity. The legal responsibility on the applicant pertaining to this fish specific legislation has not been considered. This act should be* *listed as relevant in the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES).'*	Noted. This legislation has been included in the ES.
Environment Agency	Impacts of culverts on fish. '*Any culverting of a watercourse or waterbody that contains fish can impact on lifecycle migration, both locally and more long distant. Culverting also impacts on fish habitat and spawning habitat by decreasing the quality of substrate. Therefore, we are opposed to the culverting of any watercourse and would prefer the installation of a clear full span crossing that maintains the natural substrate and allows free passage of fish.*'	Noted. New culverting of watercourses suitable for fish is not proposed, and any access crossings will be clear span to avoid these impacts. This is included in the ES. The proposed culverts on seasonally wet ditches will not impact on fish as the ditches are considered to be unsuitable for fish on the basis of being seasonally wet only with shallow water (ca. 5cm).
Environment Agency	Invasive non-native species. *'We agree in general with all ecological features 'Scoped In' with regards to Aquatic Biodiversity, along with the deemed potential likely significant effects.* *We note that an Invasive Non-Native Species (INNS) search is planned. We hold multiple records for INNS on and around the site, including Least Duckweed and Chinese mitten crab (recorded on ordinary watercourses within the central section),* *Nuttall's water-weed (recorded in the eastern section on Mother Drain) and Himalayan balsam (recorded across the different sections of the site, and just outside the site boundary.* *Other INNS recorded just outside the site boundary within or near connected watercourses include Japanese knotweed, Canadian waterweed and waterfern.* *Therefore, we strongly suggest that INNS are 'Scoped In'. We recommend that the applicant submits a Biosecurity Method Statement and Invasive Species Management Plan alongside the DCO application for the proposed development.'*	Consideration of invasive non-native species is provided in the ES.

Consultee	Summary of comment from Scoping Opinion	Applicant response
Environment Agency	Biodiversity Net Gain. *'Biodiversity Net Gain (BNG) BNG will become a legal requirement for NSIPs in November 2025 and we would like to have the opportunity to comment on this report, if possible, particularly with regards to the Water Metric element. It is positive to read that the applicant has conducted a habitat survey using the U.K. Habitats Classification System (UK HABs) (1.1.4, Appendix 8B), which provides more accurate habitat identification data for the BNG Metric, and plans to verify the habitat classifications in a later survey (1.1.7, Appendix 8B). The applicant should use the latest statutory (official) version of the biodiversity metric tool to calculate BNG, and we would also encourage the use of the Watercourse Metric.* *There is no reference to the applicant's intended BNG target. It will become a legal requirement to deliver at least 10% BNG, but we would encourage the applicant to provide more. It is noted that habitat enhancement may take place after construction.* *However, the biodiversity metric rewards units if enhancements are delivered early. Therefore, we would encourage habitat enhancements to be delivered earlier to provide wetland habitat ahead of project completion.'*	Biodiversity Net Gain is not currently a mandatory legal requirement for NSIPs. There are Local Plan policies relating to the delivery of measurable biodiversity gain. The applicant will seek to deliver at least 10% biodiversity gain at the Site. A BNG report is provided in the ES (**Appendix 7.12 – Biodiversity Net Gain [EN010163/APP/6.3.7]**) which indicates that the Proposed Development is likely to deliver a minimum of over 10% of biodiversity gain (terrestrial area habitats, hedgerows and watercourses).
Environment Agency	Habitat Regulations Assessment. *'A Habitats Regulations Assessment (HRA) will be completed as part of the application process to consider any potential impacts to designated sites. Although this is within the remit of Natural England, we would like to note that functionally linked watercourses (such as Catchwater Drain and Mother Drain) should be included in the assessment.* *The applicant should refer to the following: 'Habitats Regulations Assessment relevant to nationally significant infrastructure projects' published by the Planning Inspectorate. Nationally Significant Infrastructure Projects - Advice Note Ten: Habitats Regulations Assessment relevant to nationally significant infrastructure projects - GOV.UK (www.gov.uk)'*	Noted. These features and the linked guidance are considered as part of a report to inform HRA work.

Consultee	Summary of comment from Scoping Opinion	Applicant response
Environment Agency	Habitat buffers. *'The designed-in mitigation proposes the retention of semi-natural buffers to protect habitats and species. We recommend the provision of a 10-metre buffer from watercourse bank-tops as a minimum, to effectively protect the watercourse from sediments, enable bank stabilisation through vegetation establishment and allow space for commuting by mammals.* *However, where natural geomorphic processes take place (such as lateral channel migration), we advise the applicant to consider buffers greater than 10-metres in some locations where watercourse migration is identified.'*	Details of habitat buffers are included in the ES Ecology Chapter, which states that a minimum buffer of 10 m is proposed for wet ditches, streams/rivers. Consideration has been given to watercourse migration and appropriate habitat buffers with input from the project hydrologists as part of design work.
Environment Agency	Water Framework Directive. *'We note that a WFD Assessment has been 'Scoped-In' during the construction phase. This should include an assessment of any potential impacts (such as, but not limited to, sediment pollution) to watercourses on-site and the potential to impact hydrologically linked watercourses, which may therefore also impact the biodiversity that relies on these watercourses.'*	The WFD work is being led by the project hydrologists. Further details are provided in **Chapter 8 - Hydrology, Hydrogeology, Flood Risk and Drainage [EN010163/APP/6.2.8].**

Consultee	Summary of comment from Scoping Opinion	Applicant response
Environment Agency	Design recommendations. *'In relation to the Eastern Biodiversity Mitigation Area, the habitat survey found coastal and floodplain grazing marsh and reedbed habitats present near the River Trent (1.2.3, Appendix 8). A large assemblage of wetland birds was also found. We strongly recommend that the Landscape Ecological Management Plan (LEMP) considers the maintenance and potential enhancement of these habitats, and habitats that support the recorded species, as part of the planning and design.'* And *'It is positive to read that the applicant will consider potentially enhancing the Local Wildlife Sites (LWS) on-site. We recommend that the Nottinghamshire Wildlife Trust are consulted with regards to assessing impacts to these LWS.'*	Since the submission of the Scoping Report, an area of the Eastern Biodiversity Mitigation Area has been removed from the Site boundary in response to the findings of survey work. The remaining areas of the Eastern Biodiversity Mitigation Area, includes various wetland habitats which along with other habitats within the Eastern and Western Biodiversity Mitigation Areas will be used for delivering biodiversity benefits, and will not be negatively impacted by the Proposed Development. The LWS at the Site will be retained and protected by designed-in measures. Significant adverse effects to the LWS's are not expected. These measures have been included in the ES and further details are included in the Outline LEMP. Consultation with local consultees has been undertaken (including Nottinghamshire Wildlife Trust) regarding LWS impacts, mitigation and enhancement.

Consultee	Summary of comment from Scoping Opinion	Applicant response
Natural England	Cumulative and in-combination effects. *'The ES should fully consider the implications of the whole development proposal. This should include an assessment of all supporting infrastructure.* *An impact assessment should identify, describe, and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out. The following types of projects should be included in such an assessment (subject to available information):* *a. existing completed projects.* *b. approved but uncompleted projects.* *c. ongoing activities.* *d. plans or projects for which an application has been made and which are under consideration by the consenting authorities; and* *e. plans and projects which are reasonably foreseeable, i.e. projects for which an application has not yet been submitted, but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative and in-combination effects.* *Plans or projects that Natural England are aware of that might need to be considered in the ES:* *Springwell Solar Farm* *North Humber to High Marnham Electricity Transmission* *Cottam Solar* *West Burton* *Great North Road Solar Project* *Gate Burton* *Tillbridge Solar Farm'*	An assessment of cumulative and in-combination effects is included in the ES.

Natural England	Designated nature conservation sites International and European sites. *'The ES should thoroughly assess the potential for the proposal to affect internationally designated sites of nature conservation importance / European sites. This includes Special Protection Areas (SPA), Special Areas of Conservation (SAC), listed Ramsar sites, candidate SAC and proposed SPA.* *Article 6 (3) of the Habitats Directive requires an appropriate assessment where a plan or project is likely to have a significant effect upon a European Site, either individually or in combination with other plans or projects.* *Section 8.3.9 of the EIA Scoping Report notes that internationally designated sites will be scoped in, which is welcomed. Appendix 8a also notes that Natural England's Impact Risk Zones have been used to inform the desk study; Natural England consider the search radius and methodology suitable.* *The following European/internationally designated nature conservation site(s) are located within 30km of the proposed development site, as identified within Appendix 8a.* ***The Humber Estuary SPA, Ramsar, and SAC.*** *The Humber Estuary sites are located approx. 26.5km North of the development site. Section 8.2.9 of the EIA Scoping report only makes reference to the Humber Estuary Ramsar. Consideration must also be given to the SPA and SAC designation within the ES.* *Impacts to the passage and wintering birds associated within the SPA and Ramsar Designations are most relevant, largely due to the mobile & migratory nature of the notified species. Impacts to species associated with these sites must be considered within the ES, including via loss or disturbance to Functionally Linked Land. Natural England welcome the consideration of wintering birds, as noted in EIA Scoping Report section 8.2.29, as well as discussion at section 8.3.6, which notes no significant activity from SPA/Ramsar birds has been recorded at the site in the survey effort reviewed to date (October–December 2023). It is also noted that this will be considered in full within the Report to inform the HRA, which is welcomed.* *Natural England advise that where this initial year's survey indicates very low levels of use by SPA/Ramsar species, this survey effort may be satisfactory for this project, however, where there remains any doubt about the use of the site by these species, further survey is likely to be required over a 2nd winter. Natural England have produced standing advice for bird survey guidance for the Humber Estuary and Lower Derwent Valley Functionally Linked Land, see annex C attached. The most recent list of component species should be considered in assessment of impacts to the Humber Estuary SPA, see annex B attached.* *Despite the physical separation of the development site to the SAC, consideration should be given within the Report to Inform the HRA to rule out any impacts to the features of the SAC too.*	All noted. A full assessment on the potential impacts to relevant statutory designated sites within 30 km of the Site is included in the ES and Information to Inform a Habitats Regulations Assessment. With regards to Natural England's comment that consideration must also be given to the SPA and SAC designation of the Humber Estuary, it should be noted that the Humber Estuary SPA is 37 km from the Site, although the boundaries of the SAC and Ramsar designations are within 30 km. Given that the SPA is outside of the 30 km buffer for which potential impacts on internationally designated sites are generally considered, it has been excluded from the assessment and the rationale has been included in the ES. No further wintering bird surveys were undertaken during the winter of 2024 / 25 on the basis that the previous survey work is considered to be robust and did not identify any activity that indicates the presence of functionally linked land that could be affected by the Proposed Development. The need for further wintering bird surveys was scoped out in agreement with Nottinghamshire County Council and Bassetlaw District Council ecologists during an online meeting on 7 November 2024.

Consultee	Summary of comment from Scoping Opinion	Applicant response
	Thorne & Hatfield Moors SPA, Thorne Moor SAC, and Hatfield Moor SAC *The Thorne & Hatfield Moors designations lie approximately 19.5km North-West of the development site. The SPA is designated primarily for it's Nightjar interest; whilst the development site is significantly further than the usually considered 2km Impact Risk Zone for this species, Natural England consider the ES should consider any possible impacts, including via loss or disturbance to Functionally Linked Land.* *Impacts to the features of the two SAC designations are considered unlikely due to the physical and hydrological separation, however, this should still be assessed and considered within the Report to Inform the HRA.* ***Birklands and Bilhaugh SAC*** *Birkland and Bilhaugh SAC lies approx. 17km South-West of the development site and is designated primarily for it's ancient woodland interest. Impact to this site are considered unlikely due to the physical and hydrological separation from the development site.'*	

Consultee	Summary of comment from Scoping Opinion	Applicant response
Natural England	Nationally designated sites -Sites of Special Scientific Interest. *'The ES should include a full assessment of the direct and indirect effects of the development on the features of special interest within any nearby SSSIs, including setting out why impacts can be screened out within the ES, and identify appropriate mitigation measures to avoid, minimise or reduce any adverse significant effects.* *Section 8.3.9 of the EIA Scoping Report notes that Statutorily designated sites will be scoped in, which is welcomed. Appendix 8a also notes that Natural England's Impact Risk Zones have been used to inform the desk study; consider the search radius and methodology suitable.* *A number of SSSIs lie within 5km of the proposed development, as set out in Table 8.A.1 of Appendix 8a, including Clarborough Tunnel, Lea Marsh, Ashton's Meadow, Sutton and Lound Gravel Pits, Chesterfield Canal and Treswell Wood.* *Clarborough Tunnel SSSI lies adjacent to the development site in the South-West corner; as such may be susceptible to impacts from the proposed development, for example from direct disturbance, dust mobilisation and vehicle emissions during construction. These impacts should be considered in full within the ES. It is noted that air quality impacts during construction have been scoped into the ES; Natural England note that sensitive ecological receptors, including Clarborough tunnel SSSI, should be included in this assessment.* *In addition to the above, Natural England note the potential for enhancement of the habitat in proximity to Clarborough Tunnel SSSI and welcome the intention for the closest area of the site to be used for biological mitigation and enhancement.* *Section 8.3.8 states that impacts to other SSSIs can be ruled out, due to the distance (minimum 1.6km) from the development site. None of the relevant SSSI Impact Risk Zones are triggered by the development in this location; as such, Natural England consider impacts to other sites unlikely. Nonetheless, rationale should be included within the ES as to why impacts to these sites can be ruled out.'*	A full assessment on the potential impacts of the Proposed Development on relevant nationally designated statutory sites and the need for further mitigation is included in the ES.

Consultee	Summary of comment from Scoping Opinion	Applicant response
Natural England	Regionally and locally important designated sites. *'The ES should consider any impacts upon local wildlife and geological sites, including local nature reserves. Local Sites are identified by the local wildlife trust, geo-conservation group or other local group and protected under the NPPF (para 180). The ES should set out proposals for mitigation of any impacts and if appropriate, compensation measures and opportunities for enhancement and improving connectivity with wider ecological networks. Contact the relevant local body for further information.* *Natural England welcome the scoping in of Local Nature Conservation Sites within the EIA Scoping Report.'*	A full assessment of the potential impacts of the Proposed Development on local designated sites and the need for further mitigation is included in the ES.
Natural England	Natural England provided general comment on protected species, priority habitats and species, and ancient woodland, ancient and veteran trees. The general comments relate to the need for appropriate survey, assessment and mitigation of these features (with reference to Natural England standing advice) to be presented in the ES.	A full assessment on the potential impacts of the Proposed Development on relevant ecology features and the need for further mitigation is included in the ES.

Consultee	Summary of comment from Scoping Opinion	Applicant response
Natural England	Biodiversity Net Gain. *'The Environment Act 2021 includes NSIPs in the requirement for Biodiversity Net Gain (BNG), with the biodiversity gain objective for NSIPs defined as at least a 10% increase in the pre-development biodiversity value of the on-site habitat. It is the intention that BNG should apply to all terrestrial NSIPs accepted for examination from November 2025.* *The EIA Scoping report section 8.3.18 states that measures to enhance the overall biodiversity of the site will be implemented, however, no specific reference is made to the Statutory Biodiversity Metric, nor a target for biodiversity net gain delivery. Natural England advise that the project should include a commitment to at least 10% Biodiversity Net Gain, as is the intention of the Environment Act. Ideally, the opportunity provided by the application should enable delivery of significantly more than this 10%.* *In order to maximise nature recovery and target habitat enhancement where it will have the greatest local benefit it is recommended that locally identified opportunities should be acknowledged and incorporated into the design of BNG (both on and off -site). This should include any locally mapped ecological networks and priority habitats identified within and close to the development site. The Nottinghamshire Biodiversity Opportunity Mapping may be a useful resource. Natural England also recommend consultation with the Nottinghamshire Biodiversity Action group, Nottinghamshire Wildlife Trust, and any other local bodies, who may be able to provide invaluable local knowledge to help steer the mitigation and enhancement proposed at the site.* *In addition, Local Nature Recovery Strategies (LNRS) are a new mandatory system of spatial strategies for nature established by the Environment Act 2021 which will contribute to the National Nature Recovery Network (NRN). Work is currently underway to develop these strategies, which will identify strategic priorities for nature protection, recovery, and enhancement. Given the size and scale of the project, there are opportunities not only for enhancing biodiversity in the locality, but also to create and enhance ecological connectivity in the area, contributing to the Nature Recovery Network and climate change resilience.*	Biodiversity Net Gain is not currently a mandatory legal requirement for NSIPs. There are Local Plan policies relating to the delivery of measurable biodiversity gain. An BNG report using the Statutory Biodiversity Metric is provided in the ES (see **Appendix 7.12 - Biodiversity Net Gain report [EN010163/APP/6.3.7]**) which indicates that the Proposed Development is likely to deliver a minimum of over 10% of l biodiversity gain (terrestrial area habitats, hedgerows and watercourses). The Nottinghamshire LNR has not yet been published. During design work, consideration was given to local biodiversity strategies and other large-scale development projects nearby to seek to enhance local landscape habitat connectivity. In addition, consultation was undertaken with Nottinghamshire County Council's BNG officer and the Environment Agency regarding the approach to design and assessment.

Consultee	Summary of comment from Scoping Opinion	Applicant response
Nottinghamshire County Council – ecology	*'The proposed scope of Chapter 8 of the EIA Scoping Report looks appropriate, subject to the following minor points:* • *In Nottinghamshire, SINCs (Sites of Importance for Nature Conservation) are now called LWSs (Local Wildlife Sites).* • *It is believed that Curlew breed (or have recently bred) on Out Ings, and whilst this is outside the application site, the proposed Eastern Biodiversity Mitigation Area has the potential to be designed and managed for this species (and potentially other ground nesting birds), noting that Curlew is now a very rare breeding species in the Trent Valley.* • *Impacts on Skylark in particular will need careful consideration and mitigation, with consideration given to the potential need for off-site measures such as the provision of Skylark plots on adjacent land.'*	All noted. With regard to skylark mitigation, a skylark mitigation strategy is provided with the ES. Agreement on the approach to skylark mitigation and the general design of the Mitigation Areas at the Site (noting the comment on curlew) has been sought with the relevant local consultees.
Bassetlaw District Council	'*Non-statutory Designated Sites* *Further details should be provided about the scope for additional/incidental management of any of these sites as part of the management regime of the wider site.* *Habitats* *Further details should be provided on the seeding/planting in the Solar Areas, the timing of management (noting probable presence of nesting birds, leverets, herpetofauna etc.) and the approach towards use of chemical control of vegetation on site given the vast scale of the project and proximity to major watercourse.* *Badger* *Further details on protections for retained/created setts from machinery operating on site etc. during the operational phase.'*	The Ecology chapter of the ES includes details of mitigation and enhancement measures and **Appendix 7.14 Outline Landscape Ecological Management Plan [EN010163/APP/6.3.7]**.

Consultee	Summary of comment from Scoping Opinion	Applicant response
Bassetlaw District Council	*'Bats* *Further details are required on what compensation and enhancement for bats will be made available beyond any licencing requirements. For example, it is expected that identified commuting routes will be bolstered, main foraging areas retained and enhanced, but will new roosting provisions be provided?'*	Designed-in measures will mitigate for potential adverse effects on bat foraging / commuting by the retention, and enhancement, of habitats used by bats, and those that have greatest suitability, including hedgerows, trees, woodlands, and watercourses. Designed-in measures retain all trees / buildings with bat roost suitability. Further roost enhancements such as bat boxes are proposed. Assessment and mitigation are included in the ES.
Bassetlaw District Council	*'Birds* *Proposals for the inclusion of gaps in fencing for badger are admirable however it may be prudent for ground nesting birds, such as skylark, if these gaps were not present in all sectors and larger mammals such as badger, fox and hedgehog were excluded at least from some of the mitigation areas, if not some of the solar areas as well. The losses of skylark breeding territories to the scheme are substantial and clarification on exactly what bespoke compensation for this red listed species will be provisioned is needed.* *Noted that access wasn't possible to the proposed Eastern Mitigation Area, and this will be surveyed in 2024. Further details of which species breed here is needed and further information on what if any improvements can be made to this habitat for it to be a 'Mitigation Area'.* *Further details are required on the Habitat Management and Monitoring Plan for the whole site and how this will consider nesting birds (this will likely also have beneficial effects on other species). Although much research pertains to skylark in Solar Farms, other species such as meadow pipit, linnet etc. may be prevalent and nest in the sward in and around panels.'*	All noted. With regard to skylark mitigation, a skylark strategy is provided with the ES. Agreement on the approach to skylark mitigation and the general design of the Mitigation Areas at the Site (noting the comment on curlew) has been sought with the relevant local consultees (see below table).

Consultee	Summary of comment from Scoping Opinion	Applicant response
Bassetlaw District Council	*'Reptiles* *Further details on the mitigation and compensation for these species is required. It would be unfortunate to see these species scoped out when opportunities exist to bolster local populations and provide enhanced landscape connectivity.'*	Potential effects on reptiles have been scoped-in to the ES. Consideration of impacts, mitigation and enhancement is provided within the ES.
Bassetlaw District Council	*'Great crested newts* *Further details on the mitigation and compensation for this species are required.* *Water vole* *Further details on the mitigation and compensation for this species are required.* *Terrestrial invertebrates* *Further details on enhancements for these species is required.* *Aquatic invertebrates* *The separation between the solar areas and the River Trent is very much welcomed given the research into solar farms and Ephemeroptera etc.'*	Consideration of impacts, mitigation and enhancement is provided within the ES for these features.
Bassetlaw District Council	In combination effects Several other proposed solar developments similar in scope and scale and in proximity to or even bounding the site are emerging and these will doubtless be considered. Further details are required on communication between project teams and how habitat connectivity across these sites will be achieved. A lack of coherent connection between significant landscape features on the sites will represent a substantial loss for biodiversity in the region and ecology as a profession.	Assessment of cumulative and in-combination effects is included in the ES.
Bassetlaw District Council	The response stated 'No comment' relating to: Statutory Designated Sites; Otter; Other SPI mammals; and hazel dormouse.	N/A

Consultee	Summary of comment from Scoping Opinion	Applicant response
Mansfield District Council	*'Section 8 – This considers Ecology and Biodiversity issues. As part of this, a range of designated sites have been identified as part of the baseline position.* *This includes the Birklands and Bilhaugh SAC at paragraph 8.2.7, Table 8.A.1 of Appendix 8A and Figure 8.A.1 of Appendix 8A. Whilst this is located within the adjoining district of Newark and Sherwood it is also in relatively close proximity to Mansfield. Therefore, the identification of this site is welcomed and supported. It is noted that table 8.A.1 states that the Birklands and Bilhaugh SAC is 19.5km north of the NSIP site. The SAC is in fact located to the south-west of the site. It is felt that this error should be corrected in future documents where reference to the SAC is made.* *Section 8 – In terms of data sources, it is recommended that information be sought from the relevant Wildlife Trusts and Nottinghamshire Biological Records data (https://nottsbag.org.uk/recording/biological-recording-innottinghamshire.'*	All noted. As part of the ES desk study, the Nottinghamshire Wildlife Trust and Nottinghamshire Biological and Geological Record Centre have been consulted.

Appendix 4: Table 7. 9 - Summary of written consultation responses from the Preliminary Environmental Information Report with reference to Ecology

Consultee	Summary of comment from the PEIR	Applicant response
Natural England[45]	**Internationally Designated Sites.** <u>'Functionally Linked Land</u> *NE generally advise that functionally linked land may extend up to the maximum foraging distance for the designated bird species. However, the number of birds foraging will tend to decrease further away from the protected site and thus the importance of the land to the maintenance of the designated population will decrease. The maximum foraging distance usually expected for any species associated with the Humber designations is 20km.* *Due to the distance from the development site to the Humber Estuary SAC/Ramsar (and further to the SPA), NE consider it unlikely that the proposed development site would be functionally linked but nonetheless welcome review of the breeding and wintering bird survey results in this context.* *NE have reviewed appendices 7.4 and 7.6 & are satisfied with the survey methods used. As stated in our EIA Scoping Response with regard to wintering birds: where there remains any doubt about the use of the site by species associated with international designations, further survey is likely to be required over a 2nd winter. In this scenario, NE consider the single year's wintering bird survey effort likely to be satisfactory to enable a robust assessment.* *It is noted at paragraph 7.8.11 that these surveys show no 'significant activity' at the proposed development site from qualifying bird species, although there is some activity. Whilst it is Natural England's advice that this activity is likely to be insignificant (as a result of the distance from the designations & expected foraging distances of the species which were recorded), para 7.8.11 is clear that*	All noted. A full assessment on the potential impacts to relevant statutory designated sites within 30 km of the Site has been included in the ES and Report to Inform the HRA. The draft Report to Inform HRA was issued to and reviewed by Natural England via Discretionary Advice Service on 17 March to 25 April 2025. Following minor comments, the report has been updated (**Report to Inform HRA [EN010163/APP/ 5.5.]**) No further wintering bird surveys are proposed on the basis that the previous survey work is considered to be robust and did not identify any activity that indicates the presence of functionally linked land that could be affected by the Proposed Development.

[45] Key recommendations from Natural England are shown in red as was presented in their response.

Consultee	Summary of comment from the PEIR	Applicant response
	only an 'initial assessment' has been made with regard to FLL. NE advise that the recorded activity should be considered within the 'formal report to inform a HRA' to ensure all the relevant evidence and rationale is presented to the Planning Inspectorate & ultimately the Secretary of State for their consideration as the competent authority. *NE would be pleased to engage with the applicant on the report to inform the HRA prior to DCO submission.* *<u>Other impact pathways</u>* *Little further assessment has been provided at this stage with regard to other impact pathways to the Humber sites or other international designations.* *Due to the intervening distances and hydrological separation, impacts to other international sites are considered unlikely. Nonetheless, the formal report to inform a HRA should identify any potential impact pathways, clearly setting out why impacts are unlikely to each designation.* *NE have the following additional advice:* *- The proposed development lies well beyond the usual 2km foraging distance of Nightjar, the sole qualifying feature of Thorne and Hatfield Moors SPA, meaning impacts to this designation are unlikely. In addition, Nightjar were not recorded during any bird surveys to date.* *- The proposed development is hydrologically connected to the Humber Estuary (SAC/Ramsar), however, the distance to the Humber and the use of appropriate construction management methods is likely to avoid any appreciable effects upon the qualifying features of the Humber Estuary sites via changes to water quality.* *- No significant impact pathways appear to exist between the proposed development and: Birkland and Bilhaugh SAC, Hatfield Moor SAC and Thorne Moor SAC.'*	

Natural England	**Nationally Designated Sites** *'Clarborough Tunnel SSSI lies approximately 40m from the development boundary and has been identified as the only SSSI triggering one of Natural England's Impact Risk Zones (IRZs). NE concur with this and consider impacts to any other SSSI's as a result of the proposed development to be unlikely* *Paragraph 7.8.12 states that as the nearest part of the proposed development to Clarborough tunnel SSSI is the Western mitigation area, no impacts on the SSSI are anticipated. NE would concur that impacts to the SSSI during operation are unlikely as a result of this, however, it is unclear at this stage exactly what construction activity is likely to occur within proximity to the SSSI. We advise that there may be potential for impacts to the SSSI via the following pathways, which should be considered in the ES:* *Air Quality - Construction Traffic* Due to the proximity of the SSSI to the development site, construction traffic emissions could cause an adverse effect to the SSSI, i.e. via ammonia, NOx Emissions & subsequent Nitrogen deposition. Chapter 14 (Air Quality) sets out the screening criteria used for consideration of impacts to ecological receptors: 1000 AADT and/or 200 HDV AADT increase on the Affected Road Network (ARN) within 200m of a sensitive site. Paragraph 14.3.23 states Construction traffic is unlikely to be routed within 200m of Clarborough Tunnel SSSI, and that any change in traffic is expected to be below the relevant thresholds anyway. NE welcome this consideration, and advise that where this is the case, impacts could be ruled out. Nonetheless, this information should be clearly illustrated in ES to evidence the likely absence of any traffic emission related impacts to Clarborough Tunnel SSSI. Air Quality - Construction Dust Due to the proximity of the SSSI to the development site, construction dust could cause an adverse effect to the SSSI, i.e. via smothering. Appendix 14.3 includes a dust assessment, in line with IAQM guidance. The assessment identified the SSSI as a sensitive receptor within 50m, which is welcomed, although Table A1.9 states that ecological sensitivity is 'low', despite the SSSI being of medium sensitivity. NE would advise that ecological sensitivity should be classed as 'Medium' as a result of the SSSI. Nonetheless, NE consider the mitigation measures outlined in Table A14.11 likely to be sufficient to avoid a significant adverse effect to the SSSI. These should be secured within the oCEMP and DCO requirements. Table A14.11 states the Dust Management Plan 'may include' monitoring. NE advise the plan must include monitoring, which should form the basis of the plan, especially at the SSSI & other sensitive ecological receptors, to enable a flexible approach to be taken & action to be taken where unacceptable dust emissions are identified.'	A full assessment on the potential impacts of the Proposed Development on relevant nationally designated statutory sites and the need for further mitigation is included in the ES

Consultee	Summary of comment from the PEIR	Applicant response
Natural England	**Nationally Designated Sites** *'Enhancement* *The nearest part of the project to Clarborough Tunnell SSSI is the Western Mitigation area. Enhanced grasslands & woodland planting are proposed in this area, which is welcomed. NE would generally encourage the use of species mixes complimentary to the SSSI, where appropriate – noting the calcareous nature of the SSSI, present due to the gypsum through which the tunnel has been cut - to increase connectivity & provide supporting habitats for the diverse breeding bird/insect fauna found on the SSSI.* *Further opportunity to increase connectivity may be possible along the railway lines diverging eastwards from the SSSI, for example via extending a narrow buffer of habitat creation along the northern branch of the railway line to the intersection with the Trent Valley Minor Green Corridor (Figure 6.7 sheet 4).'*	Noted. Proposals for habitat creation and enhancement are presented in **Appendix 7.14 - Outline Landscape Ecological Management Plan [EN010163/APP/6.3.7]**.
Natural England	**Protected Species** *'Natural England generally welcome the approach taken to avoid impacts to protected species, in line with the mitigation hierarchy.* *It is noted, however, at paragraph 7.7.4 that protected species licences may be sought where impacts to protected species cannot be avoided. Specifically, paragraphs 7.8.109 and 7.8.136 make reference to licences for Badgers and GCN, respectively.* *Natural England draw your attention to PINS Advice Note 11 Annex C, which includes useful information regarding what PINS expect with regard to protected species licencing.* *Advice note 11 Annex C states that The Planning Inspectorate 'will wish to be in a position by the end of the examination to report to the Secretary of State on the likelihood of any necessary protected species licence being obtained'.* *As a result, generally, where licence need has been identified, or where it is likely that a licence will be required based on evidence gathered pre-consent, NE recommend using our Pre-Submission Screening Service, whereby we can assess a draft licence application and provide a LoNI (Letter of No Impediment), where we consider there to be no reason that a licence would not be granted post DCO consent.'*	The need for protected species licences is included within the ES. The outcome is that licences for bats and great crested newts are no likely to be required. A badger development licence is likely to be required for temporary impacts to a small number of setts.

Consultee	Summary of comment from the PEIR	Applicant response
Natural England	**Biodiversity Net Gain** *'NE welcome the use of the Statutory Biodiversity Metric for the preliminary BNG calculations.* *Paragraph 7.8.40 states that BNG will be delivered in line with relevant legislation and policy, however, no commitment is made within the PEIR to the delivery of a minimum of 10% BNG. NE recommend that whilst not yet mandatory, a commitment to at least 10% BNG in habitat, hedgerow and river units could be made within the ES. Where demonstrated to be feasible through the BNG Assessment, NE would also endorse commitment to greater gains than the minimum 10%.* *It is welcomed that areas which may be required to deliver mitigation have not been included in the BNG calculations at this stage.* *Appendix 7.12 (Preliminary Biodiversity Gain Report), states that a Habitat Management and Monitoring Plan (HMMP) will be used to secure the management of the enhancements. NE note that the PEIR also references the use of a LEMP. It may be possible to deliver the role of the HMMP within the LEMP.'*	Biodiversity Net Gain is not currently a mandatory legal requirement for NSIPs. There are Local Plan policies relating to the delivery of measurable biodiversity gain. A BNG report using the Statutory Biodiversity Metric is provided in the ES (see **Appendix 7.12**) which indicates that the Proposed Development is likely to deliver a minimum of over 10% of biodiversity gain (terrestrial area habitats, hedgerows and watercourses).

Consultee	Summary of comment from the PEIR	Applicant response
Environment Agency	**Survey Work** *'Issue: Surveys have not included relevant protect species such as water voles and otters.* *Impact: Inadequate surveys undermine mitigation and environmental enhancements on site.* *Solution: Include the Biodiversity Mitigation Areas (Eastern and Western) in surveys for otter and water vole. Survey results will also give a wider picture of the population in the area to help with providing mitigation for these species.'*	Targeted surveys for otter and water vole were not undertaken in the Biodiversity Mitigation Areas because no development is planned there, and significant impacts on otter / otter habitat can be scoped out. Notwithstanding this, surveys of the ditches and drains as part of the habitat baseline work were undertaken in the Biodiversity Mitigation Areas. As part of this, surveyors would record the presence of field signs for any notable species (including otter and water vole) if/where present. No direct evidence of otter or water vole use of the mitigation areas was recorded. Natural England, Local Planning authority Ecologists and Nottinghamshire Wildlife Trust have not raised not any concerns or objections as to the robustness of the survey work for otter or water vole. It is concluded that the work undertaken provides a robust basis for determining the otter and water vole baseline at the Site. Further survey work in the Biodiversity Mitigation Areas would not give any greater certainty to potential impacts or influence the design or mitigation proposals. Residual minor risks to otter and water vole will be managed by implementation of appropriate working methods during construction / decommissioning and habitat management during operation; these are outlined in the Outline CEMP and LEMP. On this basis, no further survey are proposed to establish baseline or inform mitigation.

Consultee	Summary of comment from the PEIR	Applicant response
Environment Agency	**Species Assessment** *'Issue: Not all relevant protected species have been included in assessments.* *River lamprey and sea lamprey have not been noted as forming part of the designation of the Humber Estuary Special Area of Conservation (SAC).* *Impact: Protected species may be harmed due to lack of assessment and appropriate mitigation being put in place.* *The River Trent (and associated tributaries) is functionally linked to this SAC in terms of habitat for both lamprey species. The impacts on these species and the conservation objectives of the SAC have not been considered.* *Solution: Include river lamprey and sea lamprey in the Environmental Impact Assessment (EIA) and ensure that mitigation is in place to protect them where impact pathways are identified.'*	Noted. River lamprey and sea lamprey were listed in the Humber Estuary SAC designation in Appendix 7.2: Designated Sites baseline report. No impact pathway has been identified to the SAC and specific mitigation measures are not proposed.
Environment Agency	**Fish Mitigation** *'Issue: There is insufficient mitigation information in order to protect fish during construction and decommissioning.* *Impact: Certain construction activities in relation to watercourse crossings, such as open cut trenching, may have a negative impact on notable fish populations.* *Solution: Robust mitigation measures to control pollution and fine sediment runoff into waterbodies need to be included in the CEMP.'* Additional narrative / explanation: Where open trench crossings are proposed, it is assumed that waterbodies will be flumed, or coffer dammed and thus require over-pumping. It may be necessary for a fish rescue and relocation to take place and for key spawning and migration periods to be avoided. Any over-pumping should ensure that screens are fitted on inlets and outlets of pumps and that they are compliant with the Eels (England and Wales) Regulations 2009.	Noted. Further mitigation information for fish is provided in **Appendix 4.1 - Outline Construction Environmental Management Plan [EN010163/APP/6.3.4]**.

Consultee	Summary of comment from the PEIR	Applicant response
Environment Agency	**Invasive Non-Native Species (INNS)** *'Issue: INNS have not been appropriately considered in proposals.* *This section mentions that no works are intended to take place in the water and the spread of Canadian pondweed is therefore highly unlikely to take place.* *Impact: Any new watercourse crossings are likely to require access to the water environment.* *Solution: Provide an INNS Management Plan for all INNS species present. Please also consider the INNS species at risk of being introduced.* *Additional narrative / explanation: Eradication of INNS will help to achieve Watercourse Metric units. Please include American mink, especially with the water vole population on site.'*	Noted. An INNS Management Plan will be provided post-consent.
Environment Agency	**Biodiversity Net Gain** *'Issue: New open span bridges are proposed.* *Impact: These proposed watercourse crossing would be extra encroachment which would impact the unit score.* *Solution: Consider this extra encroachment. Provide the River Condition Assessment results and Watercourse Metric report to the EA to review.'*	All watercourse crossings and any extra encroachment are included within the relevant BNG assessment. The full BNG assessment, including River Condition Assessment results are provided at Appendix 7.12.
Environment Agency	**Biodiversity Net Gain - Informative Comment** *'Advice: The watercourse Metric is an opportunity to deliver watercourse enhancements. BNG should be aligned with River Basin Management Plans, Local Nature Recovery Strategies (LNRSs), Water Framework Directive (WFD) objectives/mitigation measures, and Catchment Plans.* *Please consider using the Technical Guidance – BSI Standards Publication BS 8683:2021 – Process for designing and implementing Biodiversity Net Gain – Specification.'*	Noted. Consideration has been given to relevant guidance and plans with input from the project hydrologists as part of design work.

Consultee	Summary of comment from the PEIR	Applicant response
Nottinghamshire Wildlife Trust	**Ongoing Assessment** *'We note that ongoing assessment consists of the following.* *▪ Littleborough Lagoon: lake condition assessment.* *▪ Ground level assessments of off-site trees and buildings for bat and barn owl-Results of the survey, interpretation and assessment will be included in the ES to confirm baseline.* *▪ Bat activity survey - Analysis of later survey results ongoing and the PEIR includes an interim evaluation and assessment. Results of all bat surveys, interpretation and assessment will be included in the ES.* *▪ Aquatic invertebrate survey - Analysis of the collected samples is ongoing. It is stated that the PIER report will be updated at a later stage presenting the results and interpretation of the aquatic invertebrate surveys.* *We look forward to reviewing the results and assessment of all the surveys once completed.'*	The results and assessments of these surveys are presented in the ES and relevant baseline reports.
Nottinghamshire Wildlife Trust	***Assessment Limitations*** *It is stated that since the ecological survey work was performed on the site, additional areas have been included when compared to the boundary of the site that was submitted with the EIA Scoping Opinion request on 19th April 2024. The areas comprise additional roads, and areas of the railway that traverses the western portion of the site. As such, the detail on their associated habitats (i.e., road verges and railway embankments) have not been captured. We note that the additional areas will be surveyed and included within the subsequent Ecology Chapter of the ES. We find that approach to be satisfactory.*	The results of the surveys of the additional land are presented in the ES and relevant baseline reports.
Nottinghamshire Wildlife Trust	**Local Wildlife Sites** The comment identified the value of LWS within Nottinghamshire and that there are LWS within the Site and the local area. *'Every effort should be made, therefore, to ensure that LWS are protected and buffered from development, and this is recognised in Local Planning Policies. The NPPF also specifically cites the need for the protection of irreplaceable habitats. We are supportive, where feasible, for the implementation of improved management of retained habitats, such as grasslands within the nearby LWS as part of the overall mitigation package.'*	The LWS at the Site will be retained and protected by designed-in measures. Further enhancement to those within the Site will be delivered by improved management where possible, which detailed in **Appendix 7.14 - Outline Landscape Ecological Management Plan [EN010163/APP/6.3.7].** Adverse effects to the LWS's are not expected.

Consultee	Summary of comment from the PEIR	Applicant response
Nottinghamshire Wildlife Trust	**Cable Route Corridor** *'We expect details of cable routes, their installation method, and a full assessment of impacts to be provided. A Cable Route Search Area (CRSA) should be identified that forms the scope of the ecological desk study for the cable route, within which ecological records (notable species and habitats and designated sites) will be searched for. The final location of the cable route elements should be refined by the desk study, supported by ecological survey and consideration of responses to statutory consultation, prior to submission of the DCO application. We are concerned about potential adverse impacts on Local Wildlife Sites (LWS). Details should be provided on how these sites will be protected during the construction and decommissioning stages of this proposal.* *Mitigation, in the form of directional drilling will be employed for cabling beneath watercourses and hedgerows during construction, to avoid damage to linear habitats. We support that approach. However, the extent of the damage and loss to LWS is not clear and we therefore request further information about the cabling process and the LWS that are to be affected. Cabling operations should be carried out according to a PMW or Ecological Method Statement in the presence of an Ecological Clerk of Works to supervise and advise during the process to avoid direct impacts upon protected and notable species and ensure the working area is restored to a high standard.'*	Noted. Details of the cable route are presented within the ES. No LWS are in or adjacent to the cable route; adverse effects to the LWS's are not expected from the cable route. Mitigation measures (such as directional drilling) for retained habitats are presented within the ES.
Nottinghamshire Wildlife Trust	**Breeding Birds – Barn Owl** *'The ground level assessment identified 15 trees, three groups of trees and two buildings within the Proposed Solar Areas which provide potential features to support nesting barn owl. Evidence of recent use by barn owl, such as pellets and observations of owls, was associated with several of these features, but no nests were confirmed during the preliminary survey. We note that further details will be provided on the breeding status of barn owl within the subsequent ES.'*	Prior to the commencement of works that could give rise to disturbance impacts on nesting barn owls, the features with barn owl nesting / roosting potential would be inspected by a barn owl-licensed ecologist to ensure that no nesting behaviour, or dependant young are present These measures are included within the ES and **Appendix 4.1 - Outline Construction Environmental Management Plan [EN010163/APP/6.3.4]**.

Nottinghamshire Wildlife Trust	**Breeding Birds – Skylark** *'We note that a total of nine fields has been identified within the Site that are suitable for prioritising the delivery of skylark mitigation measures. These are large arable fields that support low densities of skylark, and which have few deterrent boundary features. We agree that fields that are likely to be required for delivery of other biodiversity measures may contribute to the overall extent of land that will provide opportunities for nesting skylark, but this would be likely to be at low densities than the targeted skylark land.* *The strategy applied to increase the ability of the nine arable fields to support nesting territories of skylark is the creation of skylark plots. These are small undrilled patches within cereal fields that provide access for skylark into tall, dense, winter cereal crops to nest and forage. The published evidence is that skylark plots at a density of 2 plots/ha in winter cereal crops will increase the population of skylark in each field with plots by a factor of three (Donald & Morris, 2005). Each plot should be located at least 50 m from a field boundary with a hedge or tree (open farm tracks acting as boundaries are discounted as there will be no deterrent effect from these) and at least 50 m from any adjacent woodland. Each plot should be at least 3 m wide, will have a minimum area of 16 square metres, not connected to the tramlines and be created by turning off the drill during sowing. The potential enhancement in skylark territories on skylark-priority land by the application of this prescription against the mean total (97.5 territories) likely to be displaced from Solar Areas 51%. We acknowledge that at this stage, this does not include any land that is targeted for other biodiversity reasons but that is nonetheless also likely to provide skylark nesting opportunities. We note these other areas will be factored in appropriately later in the process.* *We encourage the applicant to consider additional mitigation measures that consist of implementing management practices on suitable land which have the aim of increasing the carrying capacity to 'absorb' a significant proportion of territories from the site. Options could include the following:* *• Spring cereals or a spring break crop (other than oilseed rape, which grows too quickly) in the rotation, where viable. This will provide ideal nesting habitat.* *• Weedy overwinter stubbles are the most beneficial winter-feeding habitat for Skylarks on arable farms. The best stubbles are cereal stubbles which receive no pre-harvest glyphosate and no post- harvest herbicides throughout the winter. Cultivation of stubbles should be delayed going into a spring crop until February or March.* *• Use beetle banks to provide over-wintering habitat for beneficial insects. Beetle banks are two- metre grass strips through the middle of arable fields. Such fields can be managed as one unit, as the headland is still cropped.'*	Noted. The Skylark Mitigation Strategy has been updated and provided as an appendix to the ES. The updates have incorporated the proposed additional measures suggested by the Wildlife Trust

Consultee	Summary of comment from the PEIR	Applicant response
Nottinghamshire Wildlife Trust	**Cessation of Nitrate and Phosphate Applications to the Land** *'It is stated that converting areas of arable land to grassland will result in the cessation of nitrate and phosphate applications to the land, which is carried out periodically due to current land use. This cessation is likely to lead to less run-off from the land and improve water quality in ditches and water courses. The cessation of nitrate and phosphate applications is to be welcomed due to a positive impact on water quality, but we would like clarification on whether such applications will continue to be applied on the retained agricultural land within the DCO. We note that the phasing of the LEMP will allow compensatory habitat for farmland birds to be created before construction activities begin. We support that approach because it will provide higher quality habitat into which birds can be displaced and provide conditions to improve the productivity of the unaffected birds.'*	Noted. It is not proposed to cease application of agricultural improvements (such as nitrate and phosphate) to the retained areas of arable land within the Site on the basis that they are still required to deliver productive agricultural outputs.
Nottinghamshire Wildlife Trust	**Dormouse** *'We note that at this stage, given the distance of Treswell Woods, the intervening habitat quality and the condition of hedgerows on the site, the PIER considers dormouse to be absent. It is stated however, that further information will be sought from the dormouse group about when dispersal from Treswell Woods was detected, how far from the woods they have been recorded and in what direction (and in what habitat they have been recorded), and that this assessment will then be updated. The contact for the Nottinghamshire Dormouse Group is Lorna Griffiths.'*	Lorna Griffiths was contacted via email on 10 March 2025 for further information on the local distribution of dormouse.

Consultee	Summary of comment from the PEIR	Applicant response
Nottinghamshire Wildlife Trust	**Biodiversity Mitigation Areas** *'The draft layouts for the mitigation areas were not part of the PEIR submission and so we are grateful that BSG Ecology have provided the documents to us for our comments. We are largely supportive of the proposals, but we suggest the following amendments.* *Eastern Mitigation Area* *• We support the creation of wet woodland habitat, but we recommend removing it from the area where scrapes are proposed. Nesting wading birds such as lapwing prefer open areas to nest within because trees and other tall structures provide perching places for avian predators.* *• Fenton Gorse – woodland planting is proposed adjacent to this site. We ask that natural regeneration is considered to allow wildlife to benefit from successional habitats. We suggest that Fenton Gorse receives management to create a varied scrub structure.* *• Peninsula – we support the idea in principle but negative impacts on the botanical interest of Littleborough Lagoon LWS would need to be avoided. A bund would provide foraging habitat for birds along the water's edge, a loafing area for wildfowl and a sheltered area of water with protection from prevailing wind. On going management would be necessary to retain an open aspect.* *• Grazing – large cattle would be our preferred choice as grazing animals for this area due to them producing a more diverse sward than sheep. Conservation grazing should be the priority over commercial grazing to provide the greatest benefits for wildlife.* *• We support a 5m buffer between LWS ditch and agricultural land where wet scrapes could be created.* Western Mitigation Area ▪ We suggest establishing grassland and allowing the adjacent woodland to 'creep out' to provide a scrub edge to the woodland ▪ We suggest beetle banks rather than broader field margins because they will have greater benefit to skylarks. There may be an opportunity for tenant farmer to be paid through SFI to manage features. ▪ We would like to see lapwing plots incorporated into this area but we acknowledge that the Eastern Mitigation Area could provide nesting and foraging habitat for lapwing.	Noted. These comments have been considered and fed into the design where they are considered to be appropriate. Further details on the design of the Biodiversity Mitigation Areas is provided in **Appendix 7.14 - Outline Landscape Ecological Management Plan [EN010163/APP/6.3.7]**.

Consultee	Summary of comment from the PEIR	Applicant response
Nottinghamshire Wildlife Trust	**Grazing** *'Low intensity grazing can provide a means of managing grassland under panels, providing nature conservation benefit and allow the land to remain in agricultural production. However, high intensity, commercial grazing is unlikely to be beneficial to wildlife. Sheep are a typical choice, being compact enough to pass beneath the panels. We advocate that grazing is implemented with a biodiversity focus with a lower stocking density to maintain some structural diversity within the grassland.* *Maintaining grassland structure through the winter is good for invertebrates. Grazing should be halted for periods of the spring and summer. Halting grazing in spring (April – June) will favour early flowering plants, whereas summer (July – September) will favour summer flowering plants. Ceasing grazing April – September will provide the greatest biodiversity benefits. A combination of a low stocking density and breaks in grazing should lead to a high diversity of wildflowers and invertebrates as well as benefitting small mammals and foraging birds. A qualified ecologist should assist with the development of a conservation grazing regime that is suited to the site's characteristics and management objectives. Details of work necessary to retain, create and manage retained and new ecological features during and after construction will be provided in a Construction Environmental Management Plan (CEMP) and Landscape and Environmental Management Plan (LEMP) for the Proposed Development.'*	Noted. At this stage habitat management prescriptions are provided in outline, which are presented in **Appendix 7.14 - Outline Landscape Ecological Management Plan [EN010163/APP/6.3.7**].

Consultee	Summary of comment from the PEIR	Applicant response
Nottinghamshire Wildlife Trust	**Construction Environmental Management Plan (CEMP)** The CEMP will be a key document. Measures to minimise construction impacts may include: • Appointment of an ecological clerk of works (ECoW) to provide training and toolbox talks, oversee any activities that could potentially impact biodiversity, be responsible for monitoring and reporting on compliance with planning consents, environmental permits, legislation and mitigation. • Construction compounds should be in areas of the least nature conservation value. • Reasonable Avoidance Measures (RAMs) such as covering excavations overnight and ensuring all hazardous materials are correctly stored according to Control of Substances Hazardous to health (COSSH) legislation • Use of low-pressure construction vehicles with turf tyres or rubber tracks to minimise soil compaction and rutting. • Construction of excellent quality access roads at minimum width and with suitable drainage and sediment controls. This may include nonpermeable membrane to prevent weed damage or laying tracks and roadways that work with the land such as timber mats or road mats which allow vegetation to grow through and minimise the initial impact of laying a solid roadway • General checks by the site manager to assess fencing, litter, and proper storage of materials • Environmental monitoring surveys on water and soil to ensure they are being managed appropriately during the construction period. Water monitoring usually focuses upon sediment control.	Noted. These comments have been considered and fed into the CEMP where they are considered to be appropriate. Further details are provided in **Appendix 4.1 - Outline Construction Environmental Management Plan [EN010163/APP/6.3.4]**.
Nottinghamshire Wildlife Trust	**Decommissioning** *'Decommissioning works are likely to be similar in character to those described during construction and we would expect similar environmental controls. It is likely that the extent and value of habitats will have increased over the operational period. It is to be hoped that some of the areas of higher value habitats will be retained at the end of the operational period. It would be disappointing for habitats to be lost after 40 years of establishment and the land returned to the current baseline. We would expect that the decommissioning phase, and its potential ecological effects, will be assessed and appropriately mitigated in line with the prevailing guidance and policies of the time.'*	Noted. Consideration of Decommissioning is provided within the ES.

Consultee	Summary of comment from the PEIR	Applicant response
Nottinghamshire Wildlife Trust	**Fencing** *'The site will be protected by fencing. The ES should include information on mitigation measures (such as the use of mammal gates and their locations) to avoid significant effects from restricting the movement of species during construction and operation of the proposed development. Consideration should be given to restricting access by mammals to areas that are designed for ground nesting birds.'*	Noted. The ES provides information on fencing mitigation measures such as the use of mammal gates. At this stage the precise location of each mammal gate is not provided.
Nottinghamshire Wildlife Trust	**Monitoring** *'The EcIA should identify where monitoring is required for mitigation, compensation, and enhancement measures. It should set out the methods to be used, the criteria for determining success/failure, appropriate timing, mechanisms for implementation, frequency and duration of monitoring, and frequency of reporting. Monitoring may be used to determine:* *• whether the measures have been implemented as agreed* *• the success/effectiveness of the measures* *• early warning of proposed measures which are not proving effective* *• how to remedy the situation should any of the implemented measures fail e.g., due to lack of management.* *Monitoring should be secured through a planning condition or obligation built into legal agreements.'*	Noted. **Appendix 7.14 - Outline Landscape Ecological Management Plan [EN010163/APP/6.3.7]**. has identified that monitoring works will be undertaken.
Nottinghamshire Wildlife Trust	***Biodiversity Net Gain*** The comment noted that NSIP projects are currently exempt from mandatory BNG until November 2025, but encourage the project to commit to delivering at least 10% biodiversity gain.	The BNG assessment work has identified that Proposed Development will deliver over 10% gain for terrestrial and aquatic habitats.
Nottinghamshire Wildlife Trust	**In Combination Effects** *'NWT is aware of several other proposed solar developments similar in scope and scale and in proximity to or even bounding the site are in development and we would expect to see an assessment of in combination effects. We encourage communication between project teams to deliver habitat connectivity across these sites to provide greater benefits for wildlife and contribute to 30 x 30. A coherent connection between significant landscape features on the sites will represent a substantial gain for biodiversity in the county.'*	An assessment of in-combination effects is provided in the ES.

Consultee	Summary of comment from the PEIR	Applicant response
Nottinghamshire Wildlife Trust	**Boundary Features** *'The Trent and Belvoir Vales National Character Area should be used as a guide for woodland types. Native species, preferably of local provenance stock for all new plantings should be used that are characteristic of the National character Area (NCA). Most hedges in the area are dominated by common hawthorn. To increase the value of the hedges to wildlife, existing and new hedges should be enhanced by the introduction of other shrub species. Variation can be achieved by altering the proportions of species used and future management of the hedges. Many hedges in the solar and biodiversity park are species-poor, gappy and maintained short and narrow. There is an opportunity therefore, to improve the biodiversity value of existing hedges through gapping up with additional species and allowing hedges to grow taller and wider. New hedges would be of value where they improve connectivity between wooded areas.'*	Noted. The hedgerow creation and enhancement strategy include measures suggested by Nottinghamshire Wildlife Trust.
Nottinghamshire Wildlife Trust	**Avoidance of High-value Features** *'Where it is not possible to exclude works from high-value features, further studies, detailed assessment and mitigation should be undertaken. We consider the proposed buffer zones within Appendix 1: Table 7.5 Recommended Buffer Zones and Stand-off Distances from Ecological Features to be generally satisfactory. We note that at this stage buffer zones for specific mature trees are not provided but that advice will be obtained from an arboriculturist.* *For trees / buildings with confirmed bat roost presence we note that an appropriate buffer will be dependent upon species and a case-by-case assessment is being proposed. Disturbance from construction activity may affect species at varying distances depending on the species, type of roost, and the work being undertaken. The buffer would also need to consider the type of development feature to be installed (solar arrays, access roads, battery storage etc) as some are likely to generate greater levels of disturbance than others. We are satisfied with that approach.'*	Individual tree root protection areas are specified in the Arboriculture Assessment (**Appendix 6.5 – Arboricultural Impact Assessment [EN010163/APP/6.3.6]**) and have been incorporated into the designed-in measures. Potential bat roost trees and buildings have been retained and incorporated into semi-natural habitat buffers. The potential for residual adverse effects from disturbance to potential bat roost features has been considered within the ES.

Consultee	Summary of comment from the PEIR	Applicant response
Canal and Rivers Trust	**PEIR Chapter 7 – Ecology and Biodiversity** *'We note that the two Biodiversity Mitigation Areas (Eastern and Western) have been provisionally identified for use as biodiversity mitigation and enhancement and are not intended to be used for development and the Eastern area is located adjacent to the River Trent. Habitats within the Eastern area are intended to be used for biodiversity mitigation and are not anticipated to be negatively impacted by the proposed development either during the construction phase or the operational phase. We note that it is indicated the design of the Mitigation Areas is still being developed but it is expected to enhance retained habitats and explore the creation of new habitat. We recommend engagement with the Canal & rivers Trust in relation to the proposed design of the Eastern Biodiversity Area alongside the River Trent.'*	Canal and Rivers Trust were emailed by BSG Ecology on 11 March 2025 inviting them to discuss the Biodiversity Mitigation Area designs. No response had been received by 09 May 2025.

Appendix 5: Table 7.10 Summary of Ecology consultation meetings

Engagement	Issue	Regard had by the Applicant
Natural England		
Technical meetings with specialists and/or correspondence via email	Ecology and Biodiversity	The Applicant liaised at an introductory pre-contract meeting. This included introducing the project to the Site and Natural England set out their role in the process and contract options for engagement. Natural England and the Applicant have also engaged over the approach to the Habitats Regulations Assessment. More information is within this chapter and the **Report to Inform Habitats Regulations Assessment [EN010163/APP/5.5].**
Nottinghamshire County Council and Bassetlaw District Council Ecologists		
Technical meetings with specialists and/or correspondence via email	Ecology and Biodiversity	The Applicant has engaged the Council ecologists regarding survey scope, survey results, cumulative effects, zones of influence, effects to Local Wildlife Sites, design and mitigation proposals, habitat creation and enhancement, approach to biodiversity net gain. The Applicant supplied various interim and draft documents and designs in advance of the meetings. All feedback has been taken into consideration.
Nottinghamshire Wildlife Trust		
Technical meetings with specialists and/or correspondence via email	Ecology and Biodiversity	The Applicant has engaged with the Wildlife Trust regarding the effects to Local Wildlife Sites, design and mitigation proposals, habitat creation and enhancement, impacts to skylark and the approach to ground nesting bird mitigation. The Applicant supplied various interim and draft documents and designs in advance of the meeting. Scoping out dormouse surveys at the Site has also been agreed the Wildlife Trust who have local

		expertise on dormouse reintroduction and monitoring projects locally. All feedback has been taken into consideration.
Nottinghamshire County Council Biodiversity Net Gain Officer		
Technical meetings with specialists and/or correspondence via email	Ecology and Biodiversity	Specific consultation has taken place between the Applicant and the Biodiversity Net Gain Officer to agree the approach to the Biodiversity Net Gain assessment. This has included veteran tree assessment, how strategic significance is applied, and how to approach land within the Site that is subject to existing third-party planning consents and obligations. All feedback has been taken into consideration. More information is in this chapter and **Biodiversity Net Gain Report [EN010163/APP/6.3.7]**