Chapter 7 - Ecology

Postcombe and Lewknor Solar Farm Environmental Statement

Postcombe and Lewknor Solar Farm Limited
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SLR Project No.: 425.VT1363.00001

8 May 2025

Revision: Final

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
V1	4 March 2025	Giselle Parry	Russell Goodchild	Jess Colebrook
V2	8 May 2025	Giselle Parry	Russell Goodchild	Jess Colebrook

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Acronyms and Abbreviations

BAP	Biodiversity Action Plan
BNG	Biodiversity net gain
BNGR	British National Grid Reference
BoCC	Birds of Conservation Concern
BU	Biodiversity Unit
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
EcIA	Ecological Impact Assessment
ECoW	Ecological Clerk of Work
eDNA	Environmental DNA
EPSL	European Protected Species Licence
ES	Environmental Statement
GCN	Great Crested Newt
GLTA	Ground Level Tree Assessment
ha	Hectare
HSI	Habitat Suitability Index
INNS	Invasive non-native species
IUCN	International Union for the Conservation of Nature
LEMP	Landscape and Ecological Management Plan
MS	Method Statement
NE	Natural England
NERC	Natural Environment and Rural Communities Act 2006
NNR	National Nature Reserve
NPPF	National Planning Policy Framework (England) 2024
PEA	Preliminary ecological appraisal
PMW	Precautionary Method of Work
PRF	Potential Roosting Features
PV	Phot-Voltaic
S41	Section 41 of the Natural Environment and Rural Communities Act (2006)
SAC	Special Area of Conservation
SODC	South Oxfordshire District Council
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
TVERC	Thames Valley Environmental Records Centre
WCA	Wildlife and Countryside Act 1981

7. Ecology

7.1 Executive Summary

7.1.1.1 This chapter of the Environmental Statement (ES) has been prepared by SLR Consulting Limited (SLR) and provides an Ecological Impact Assessment (EcIA) in respect of the Proposed Development. The EcIA has been carried out in accordance with the principles contained within

- CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester;
- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.3. Chartered Institute of Ecology and Environmental Management, Winchester; and
- BS42020: Biodiversity – Code of Practice for Planning and Development.

7.1.1.2 The assessment scope has been informed by relevant national and local planning policy and guidance, established best practice and experience, as well as via the scoping and consultation process.

7.1.1.3 Important ecological features that could be impacted by the scheme are identified as:

- Aston Rowant SAC, SSSI, NNR;
- Chiltern Beechwoods SAC;
- Ancient Woodland;
- Veteran ash trees;
- Hedgerow (h2a);
- Notable plant species: White helleborine and bee orchid;
- Invasive plants: Rhododendron and variegated yellow archangel;
- Great Crested Newt;
- Breeding Birds, including skylark;
- Bats;
- Badger;
- Hazel dormouse; and
- Brown hare, hedgehog, polecat, common lizard, slow worm.

7.1.1.4 With embedded design, applied mitigation and additional mitigation measures in place, no significant residual construction effects are predicted for any of the important ecological features identified, with the exception of skylark which is to be compensated for off-site.

7.1.1.5 The applied and additional mitigation required will be secured via a Construction Environmental Management Plan (CEMP) (which will include a Biosecurity and Invasive Non-native Method Statement) and a Landscape and Ecological

Management Plan (LEMP). The LEMP will also include details of the monitoring and management of habitats at the solar site for the lifetime of the development, as well as a range of measures that will be employed for the benefit of biodiversity. A Biodiversity Net Gain Assessment is presented as a technical appendix to this chapter; it concludes that there will be more than a 100% increase in habitat and hedgerow units and no loss watercourse units, but no net gain. Since unit types are not tradeable, the significant increase in habitat and hedgerow units does not offset the absence of 10% gain in watercourse units. In order to address the shortfall in watercourse units, it would be necessary create new watercourses on site, and/ or to offset off-site.

7.1.1.6 Habitat loss for skylark cannot be mitigated and remains a significant residual effect at the District level. As set out in the mitigation hierarchy, compensation is therefore required, the full details of the proposed compensation will be included in a Skylark Compensation Plan to be conditioned. Whilst implementing the Skylark Compensation Plan will not remove the significant negative effect of habitat loss, it is considered possible to completely offset it.

7.2 Introduction

7.2.1.1 This chapter of the Environmental Statement (ES) has been prepared by SLR Consulting Limited (SLR) and provides an Ecological Impact Assessment (EcIA) in respect of the proposed development of a solar farm and cable corridor route (the 'Proposed Development') at a site centred on Ordnance Survey (OS) British National Grid Reference (BNGR) SU 70800 98800, hereafter referred to as the 'Site'. The Site is split up into the 'solar site' and the 'cable corridor', its location and boundary are shown at **Figure 1.1.**

7.2.1.2 This chapter has been written by Giselle Parry, Senior Ecologist at SLR, Associate member of the Chartered Institute of Ecology and Environmental Management (ACIEEM). Giselle has worked in professional consultancy for over five years and has prepared reports for a range of different projects and plans, including solar sites. The chapter has been reviewed by SLR Associate Ecologist Russell Goodchild, full member of CIEEM (MCIEEM), who has worked in ecological consultancy for over 15 years working on a variety of projects including infrastructure and renewable energy. Additional technical support and review was provided by Jess Colebrook, Principal Ecologist, Chartered Environmentalist (CEnv), MCIEEM and by Dr Andrea Wilcockson, BSc, MSc, PHD, CEnv, MCIEEM, a Technical Director with SLR's Ecology & Biodiversity team who has over twenty-one years' experience in ecological consultancy

7.2.1.3 Relevant technical appendices attached to this ES that should be read alongside it include :

- **Appendix 7.1** – Lewknor Grid Connection Preliminary Ecological Appraisal Report (SLR, 2025)
- **Appendix 7.2** – Lewknor Solar Farm, Installation of Solar Array Preliminary Ecological Appraisal Report, Version 2 (EcoLine, 2022)
- **Appendix 7.3** – Lewknor Solar, Habitat Report (Ecology by Design, 2024)
- **Appendix 7.4** – Lewknor Solar, Breeding Bird Survey Report (Ecology by Design, 2024)
- **Appendix 7.5** – Lewknor Solar, Dormouse Survey Report (Ecology by Design, 2024)
- **Appendix 7.6** – Biodiversity Net Gain Assessment
- **Appendix 7.7** – CONFIDENTIAL: Land north of Lewknor, Badger Survey Report (Windrush Ecology, 2023)
- **Appendix 7.8** – Habitat Regulations Assessment Screening Report

7.3 Relevant Legislation and Policy

7.3.1.1 This section identifies the legislation and policy that has informed the assessment of effects with respect to ecology. A summary of the key provisions within the relevant legislation and policy is provided in **Table 7.1**. Further information on

policies relevant to the EIA and their status is provided in **Chapter 2**: Approach to EIA.

National Legislation

Conservation of Habitats and Species Regulations 2017 (as amended)

7.3.1.2 The Conservation of Habitats and Species Regulations 2017 (as amended) (the Habitats Regulations) are one of the pieces of domestic law that transposed the land and marine aspects of the Habitats Directive (Council Directive 92/43/EEC) and certain elements of the Wild Birds Directive (Directive 2009/147/EC) (known as the Natura Directives) into English and Welsh law. These regulations were last amended in 2019 to make them operable from 1 January 2021 despite the UK's withdrawal from the European Union (EU).

7.3.1.3 The Habitats Regulations cover the requirements for protecting sites that are internationally important for threatened habitats and species and set out a legal framework for species requiring strict protection.

RAMSAR Convention

7.3.1.4 The Convention on Wetlands of International Importance especially as Waterfowl Habitat ('Ramsar Convention' or 'Wetlands Convention') was adopted in Ramsar, Iran in February 1971 and came into force in December 1975. It provides the only international mechanism for protecting sites of global importance and is thus of key conservation significance.

7.3.1.5 The UK ratified the Ramsar Convention and designated its first Ramsar Sites in 1976. The designation of UK Ramsar Sites has generally been underpinned through prior notification of these areas as Sites of Special Scientific Interest (SSSI). The UK government and the devolved administrations have also issued policy statements relating to Ramsar Sites which extend to them the same protection at a policy level as Special Areas of Conservation (SAC) and Special Protection Areas (SPA).

Wildlife and Countryside Act 1981

7.3.1.6 The Wildlife and Countryside Act 1981 consolidated and amended existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Birds Directive. The Wildlife and Countryside Act is divided into four parts.

- Part I is concerned with the protection of wildlife;
- Part II relates to the countryside and national parks (and the designation of protected areas);
- Part III covers public rights of way; and
- Part IV deals with miscellaneous provisions of the Act.

Protection of Badgers Act 1992

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

Hedgerow Regulations 1997

7.3.1.8 These regulations, which were made under the Environment Act 1995, restrict the removal of hedgerows. To be protected under the regulations, a hedgerow must be at least 30 years old and over 20 m long and in addition must fulfil one of a number of criteria set out in the legislation.

Environment Act 2021

7.3.1.9 The Environment Act 2021 has wide ranging provisions including those around:

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

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

7.3.1.10 Part 3 of the regulations provides for the protection of areas of habitats or species where maintenance of the status of water is an important factor. Under the regulations, additional consideration may need to be given to sites in the form of a Water Framework Directive (WFD) assessment where a project lies in proximity to a water body or to linked water bodies which could be affected. This includes consideration of whether water bodies are WFD receptors, in particular those of high status or which have high status morphology.

Natural Environment & Rural Communities (NERC) Act 2006

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

7.3.1.12 Section 41 of the Act requires the publication of a list of habitats and species which are of principal importance for the purpose of conserving biodiversity. The

Section 41 list is used to guide authorities in implementing their duty to have regard to the conservation of biodiversity.

National Planning Policy

National Planning Policy (England) 2024[1]

7.3.1.13 The National Planning Policy Framework (NPPF) sets out guidance for local planning authorities and decision-makers in how to apply planning policies when drawing up plans and making decisions about planning applications. Along with Government Circular 06/05, the broad policy objectives in relation to the protection of biodiversity and geological conservation in England through the planning system are set out.

7.3.1.14 The planning practice guidance for the Natural Environment explains key issues in implementing policy to protect and enhance the natural environment, including local requirements.

Government Circular 06/05

7.3.1.15 This circular provides administrative guidance on the application of the law relating to planning and nature conservation as it applies in England. It complements the national planning policy in the National Planning Policy Framework and the relevant planning practice guidance.

Local Planning Policy

South Oxfordshire Local Plan 2011- 2035 (adopted 2020)

7.3.1.16 South Oxfordshire Local Plan guides planning decisions in the area. Five policies within the plan are of particular relevance to biodiversity and nature conservation, see **Table 7.1** for details.

Tetsworth and Lewknor Neighbourhood Development Plans

7.3.1.17 The northern extremity of the cable corridor lies within Tetsworth civil parish, the remainder is within Lewknor civil parish. Both are subject to the current adopted

[1] Ministry of Housing, Communities and Local Government (2024) National Planning Policy Framework available at https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf. Note that this version of the NPPF was amended on 7 February 2025 to correct cross-references from footnotes 7 and 8, and amend the end of the first sentence of paragraph 155 to make its intent clear. For the avoidance of doubt the amendment to paragraph 155 is not intended to constitute a change to the policy set out in the Framework as published on 12 December 2024.

Neighbourhood Development Plans. Policies relevant to nature conservation, wildlife, and biodiversity are included in **Table 7.1**.

7.4 Guidance

7.4.1.1 The Ecological Impact Assessment (EcIA) presented in this chapter has been carried out in accordance with the principles contained within:

- CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester;
- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.3. Chartered Institute of Ecology and Environmental Management, Winchester; and
- BS42020: Biodiversity – Code of Practice for Planning and Development.

7.4.1.2 Additional guidance in respect of the survey and/ or evaluation of habitats or species are referenced in the associated technical appendices and/ or the Method sections (**Section 0** below and **Appendices 7.2-7.8**).

Table 7.1: Legislation and Policy Context

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
Legislation		
Conservation of Habitats and Species Regulations 2017 (as amended)	Protection of Special Protection Areas (SPAs) and Special Areas of Conservation (SAC). Protection of certain animal species and their places or rest or shelter. Protection of certain plant species.	The relevant provisions of the Habitats Regulations are addressed in **Sections 0, 7.8, 7.10** and **7.11.**
Wildlife and Countryside Act 1981 (as amended)	Protection of Sites of Special Scientific Interest (SSSIs). Protection of certain animals and plant species and their place of shelter or protection. Prohibition of allowing certain plant species to grow or spread in the wild.	The relevant provisions of the Wildlife and Countryside Act are addressed in **Sections 0, 7.8, 7.10** and **7.11**
Protection of Badgers Act 1992	Protection of badgers from killing and injury, and badger setts from disturbance.	The relevant provisions of the Protection of Badgers Act are addressed in **Sections 0, 7.8, 7.10** and **7.11.**
Hedgerow Regulations 1997	Protection of hedgerows deemed “important” under ecological or historical criteria set out in the Regulations.	The relevant provisions of the Hedgerow Regulations are addressed in **Sections 0, 7.8, 7.10** and **7.11**.
Environment Act 2021	Of particular relevance is Part 6 of the Act which introduces “biodiversity gain in planning” which apply in England to planning applications under the Town & Countryside Act and the Planning Act. Scheule 14 nor requires that biodiversity	The relevant provisions of the Environment Act are addressed in **Sections 0, 7.5, 7.8, 7.10** and **7.11**. Further detail is included in **Appendix 7.8** Biodiversity Net Gain Assessment.

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
	gain be a condition of planning permission in England. This part of the Act also strengthens the existing NERC Act biodiversity duty.	
The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017	Part 3 of the Regulations provides for the protection of areas of habitats or species where maintenance of the status of water is an important factor.	The relevant provisions of the Water Framework Directive are addressed in **Sections 0, 7.8, 7.10** and **7.11**.
Natural Environment & Rural Communities (NERC) Act 2006	Section 40 of the NERC Act 2006 places a duty on public authorities to have regard to the purpose of conserving biodiversity in the exercise of their functions. Section 41 of the Act requires the publication of a list of habitats and species which are of principal importance for the purpose of conserving biodiversity. The Section 41 list is used to guide authorities in implementing their duty to have regard to the conservation of biodiversity.	The relevant provisions of the NERC Act are addressed in **Sections 0, 7.8, 7.10** and **7.11**
National Planning Policy		
NPPF	Specific policies relating to habitats and biodiversity are set out in paragraphs 187 to 195 of the NPPF. Paragraph 187 states, "*Planning policies and decisions should contribute to and enhance the natural and local environment by:* *a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);* *b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;* *c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;* *d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures and incorporating features which support priority or threatened*	Designated sites, protected species, and habitats and other species identified as being of importance for the conservation of biodiversity, are identified in **Section 7.8**. Effects upon important ecological features are assessed in **Sections 7.11, 7.12** and **7.15**. Embedded and additional mitigation measures, plus compensation measures are set out in **Sections 7.10 - 7.12**. Proposals for biodiversity enhancement are included at **Section 7.14**. These include woodland and hedgerow planting proposals that seek to address the requirement to promote coherent, resilient ecological networks. The results of the BNG assessment are set out in **Appendix 7.8**.

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
	species such as swifts, bats and hedgehogs; *e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and* *f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate*". Paragraph 192 states, "*To protect and enhance biodiversity and geodiversity, plans should:* *a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation69; and* *b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity*. Paragraph 193 states, "*When determining planning applications, local planning authorities should apply the following principles:* *a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;* *b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that*	

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
	make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest; *c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and* *d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate."* Paragraphs 194-195 relate to European sites (referred to as habitats sites) and states, "*the following should be given the same protection as habitats sites:* *a) potential Special Protection Areas and possible Special Areas of Conservation* *b) listed or proposed Ramsar sites; and* *c) sites identified, or required, as compensatory measures for adverse effects on habitats sites potential Special Protection Areas, possible Special Areas of Conservation and listed or proposed Ramsar sites*."	
Govt Circular 06/05	This circular provides administrative guidance on the application of the law relating to planning and nature conservation as it applies in England. It includes sections related to internationally designated sites, nationally designates sites, habitats and species as well as other duties by planning authorities. The circular makes clear that: *'4. Planning authorities should follow the procedures ….. for SPAs, cSACs, and SACs, and, more generally, should have regard to the [EC Birds and Habitats] Directives in the exercise of their planning functions in order to fulfil the requirements of the Directive in respect of the land use planning system.* *61. The Government expects all section 28G authorities, including planning authorities, to:*	The relevant provisions of the Habitats Regulations (which implement the EC Directives in the UK) are addressed in **Sections 7.6, 7.10, 7.12** and **7.13** Designated sites, protected species, and habitats and other species identified as being of importance for the conservation of biodiversity, are identified in **Section 7.8**. Effects upon important ecological features are assessed in **Section 7.12** and **7.13**.

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
	a) apply strict tests when carrying out any functions within or affecting SSSIs, to ensure that they avoid or at least minimise adverse effects; *b) adopt the highest standards of management in relation to SSSIs in their ownership, and to take appropriate action to prevent damage by third parties; and* *c) as owners or otherwise to take positive steps, wherever possible, to conserve and enhance the special interest features of a SSSI where their activities may be affecting it, or as opportunities arise in the exercise of their functions. English Nature will advise on a case by case basis as to opportunities for enhancement.* *99. It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision. The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted. However, bearing in mind the delay and cost that may be involved, developers should not be required to undertake surveys for protected species unless there is a reasonable likelihood of the species being present and affected by the development.'*	
Local Planning Policy		
South Oxfordshire Local Plan 2011-2035	**Policy ENV1: landscape and countryside, part 2** which states, "*South Oxfordshire's landscape, countryside and rural areas will be protected against harmful development. Development will only be permitted where it protects and, where possible enhances, features that contribute to the nature and quality of South Oxfordshire's landscapes, in particular:* *i) trees (including individual trees, groups of trees and woodlands), hedgerows and field boundaries;*	Designated sites, protected species, and habitats and other species identified as being of importance for the conservation of biodiversity, are identified in **Section 7.8**. Effects upon important ecological features are assessed in **Section 7.12** and **7.13**. Embedded and additional mitigation measures, plus compensation measures are set out in **Sections 7.10 - 7.12**. Proposals for biodiversity enhancement are included at **Section 7.14**. These include

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
	ii) irreplaceable habitats such as ancient woodland and aged or veteran trees found outside ancient woodland; *iii) the landscapes, waterscapes, cultural heritage and user enjoyment of the River Thames, its tributaries and flood plains;* *iv) other watercourse and water bodies;* *v) the landscape setting of settlements or the special character and landscape setting of Oxford;* *vi) topographical features;* *vii) areas or features of cultural and historic value;* *viii) important views and visually sensitive skylines; and* *ix) aesthetic and perceptual factors such as tranquillity, wildness, intactness, rarity and enclosure.* **Plus part 4** which states, "*The Council will seek the retention of important hedgerows. Where retention is not possible and a proposal seeks the removal of a hedgerow, the Council will require compensatory planting with a mixture of native hedgerow species."* **Policy ENV2: Biodiversity – Designated Sites, Priority Habitats and Species** *1. The highest level of protection will be given to sites of international nature conservation importance (Special Areas of Conservation). Development that is likely to result in a significant effect, either alone or in combination, on such sites will need to satisfy the requirements of the Conservation of Habitats and Species Regulations 2017 (as amended).* *2. Sites of Special Scientific Interest (SSSI) are of national importance. Development that is likely to have an adverse effect on a SSSI (either on its own or in combination with other developments) will only be permitted in exceptional circumstances, where it can be demonstrated that the benefits of the development in the location proposed clearly outweigh any harm to the special interest features and the SSSI's contribution to the local ecological network. In such circumstances, measures*	woodland and hedgerow planting proposals that seek to address the requirement to promote coherent, resilient ecological networks. The results of the BNG assessment are set out in **Appendix 7.8**.

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
	should be provided (and secured through planning conditions or legal agreements) that would mitigate or, as a last resort, compensate for the adverse effects resulting from development. *3. Development likely to result, either directly or indirectly to the loss, deterioration or harm to:* • *Local Wildlife Sites* • *Local Nature Reserves* • *Priority Habitats and Species* • *Legally Protected Species* • *Local Geological Sites* • *Ecological Networks (Conservation Target Areas)* • *Important or ancient hedges or hedgerows* • *Ancient woodland and veteran trees* *will only be permitted if:* *i) the need for, and benefits of the development in the proposed location outweigh the adverse effect on the interests;* *ii) it can be demonstrated that it could not reasonably be located on an alternative site that would result in less or no harm to the interests; and* *iii) measures will be provided (and secured through planning conditions or legal agreements), that would avoid, mitigate or as a last resort, compensate for the adverse effects resulting from development.* *4. Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) will be refused planning permission, unless there are wholly exceptional reasons justifying the granting of planning permission.* *5. Where development has the potential to affect a proposed wildlife site the developer must undertake surveys and assessments to determine whether the site meets the criteria for Local Wildlife Site status.*	

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
	Policy ENV3: Biodiversity *1. Development that will conserve, restore and enhance biodiversity in the district will be supported. All development should provide a net gain in biodiversity where possible. As a minimum, there should be no net loss of biodiversity. All proposals should be supported by evidence to demonstrate a biodiversity net gain using a recognised biodiversity accounting metric.* *2. Development proposals which would result in a net loss of biodiversity will only be considered if it can be demonstrated that alternatives which avoid impacts on biodiversity have been fully explored in accordance with the mitigation hierarchy*. In the absence of alternative sites or layouts, development proposals must include adequate mitigation measures to achieve a net gain of biodiversity.* *Where harm cannot be prevented or adequately mitigated, appropriate compensation measures will be sought, as a last resort, through planning conditions or planning obligations (depending on the circumstances of each application) to offset the loss by contributing to appropriate biodiversity projects to achieve an overall net gain for biodiversity.* *3. Planning permission will only be granted if impacts on biodiversity can be avoided, mitigated or, as a last resort, compensated fully.* **Policy ENV4: Watercourses** *1. Development of land that contains or is adjacent to a watercourse must protect and where possible, enhance the function and setting of the watercourse and its biodiversity. As a last resort development should provide mitigation for any unavoidable impacts.* *2. Development should include a minimum 10m buffer zone along both sides of the watercourse to create a corridor favourable to the enhancement of biodiversity. Where a 10m wide buffer zone is not considered possible by the local planning authority, (for example in dense urban areas where existing development comes closer to the watercourse) a smaller buffer zone may be allowed, but should still be accompanied*	

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
	by detailed plans to show how the land will be used to promote biodiversity and how maintenance access to the watercourse will be created. Wherever possible within settlements a minimum 10m buffer should be maintained. *3. Proposals should avoid the culverting of any watercourse. Opportunities taken to remove culverts will be supported.* *4. Outside settlements, proposals for mooring stages will not be permitted. Proposals for posts, earthworks or facing riverbanks with piles and planking will not be permitted except under exceptional circumstances and in agreement with the Environment Agency. Where it is necessary to protect a riverbank from erosion, the protective measures must be designed to maintain and enhance the special character of the river and its environment, including its biodiversity.* *5. Major development proposals which are located within 20m of a watercourse will require a Construction Management Plan to be agreed with the Council before commencement of work to ensure that the watercourse will be satisfactorily protected from damage, disturbance or pollution.* *6. Sites for new development with existing culverts will be expected to investigate the feasibility of de-culverting the watercourse. Where bridges are proposed as an alternative to culverting, the construction method should take into account the importance of maintaining an obstruction free bank for wildlife.* **Policy ENV5: Green Infrastructure in New Developments** *1. Development will be expected to contribute towards the provision of additional Green Infrastructure and protect or enhance existing Green Infrastructure.* *2. Proposals should:* *i) protect, conserve or enhance the district's Green Infrastructure;* *ii) provide an appropriate level of Green Infrastructure with regard to requirements set out in the Green Infrastructure Strategy, AONB Management Plan or the Habitats Regulations Assessment;*	

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
	iii) avoid the loss, fragmentation, severance or other negative impact on the function of Green Infrastructure; *iv) provide appropriate mitigation where there would be an adverse impact on Green Infrastructure; and* *v) provide an appropriate replacement where it is necessary for development to take place on areas of Green Infrastructure.* *3. All Green Infrastructure provision should be designed with regard to the quality standards set out within the Green Infrastructure Strategy, or where relevant the Didcot Garden Town Delivery Plan. Consideration should also be given to inclusive access and contributing to gains in biodiversity, particularly through the use of appropriate planting which takes account of changing weather patterns. Where new Green Infrastructure is provided, applicants should ensure that appropriate arrangements are in place to ensure its ongoing management and maintenance*	
Tetsworth Neighbourhood Development Plan 2034	**Policy TET8 – Biodiversity and the Natural Environment** *Development proposals should ensure that existing wildlife habitats are not unacceptably affected, and that existing green and blue infrastructure are preserved and where practicable enhanced (including providing net gains in biodiversity).* *As appropriate to their scale, nature and location development proposals should take account of the relevant geographic area of the Tetsworth Parish Character Assessment.*	Designated sites, protected species, and habitats and other species identified as being of importance for the conservation of biodiversity, are identified in **Section 7.8**. Effects upon important ecological features are assessed in **Section 7.12** and **7.13**. Embedded and additional mitigation measures, plus compensation measures are set out in **Sections 7.10 - 7.12**. Proposals for biodiversity enhancement are included at **Section 7.14**. These include woodland and hedgerow planting proposals that seek to address the requirement to promote coherent, resilient ecological networks. The results of the BNG assessment are set out in **Appendix 7.8**.

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
Lewknor Parish Neighbourhood Plan 2023-2040	**Policy EN1: Wildlife and Biodiversity** *As appropriate to their scale, nature and location development proposals should comply with the following biodiversity principles:* *i. Loss of mature trees, hedgerows or other form of wildlife corridor should be avoided, either as part of a landscape scheme and layout or as part of the construction works of a development scheme. Where the loss of a mature tree or hedgerow is unavoidable, the proposals should make provision on site for species appropriate to the site's growing conditions. Development proposals affecting trees and woodlands should, where appropriate, be supported by adequate tree survey information; tree constraints should be identified by a qualified arboricultural consultant, based on a Tree Survey completed in accordance with the current edition of British Standard 5837. Development proposals are encouraged to replace trees which are not being retained as a result of the development at a ratio of at least 2:1 or in an approved alternative location in accordance with a compensation scheme provided as a condition of planning permission.* *ii. Where appropriate, incorporate landscape schemes which use species appropriate to the site's growing conditions.* *iii. On-site biodiversity enhancements such as new roosting features for bats or nest features for birds (including for use by swifts, swallows and house martins) should be incorporated into the fabric of the development.* *iv. Fences, walls or hedges should be designed to incorporate features which allow safe dispersal of wildlife through areas of green space and gardens.* *v. Development proposals should be planned so as to avoid deterioration in the ecological status of the Parish's chalk streams.* *vi. Development should retain or provide a buffer adjacent to the watercourse of natural or semi-natural habitat, free from built development and parking areas.*	Designated sites, protected species, and habitats and other species identified as being of importance for the conservation of biodiversity, are identified in **Section 7.8**. Effects upon important ecological features are assessed in **Section 7.12** and **7.13**. Embedded and additional mitigation measures, plus compensation measures are set out in **Sections 7.10 - 7.12**. Proposals for biodiversity enhancement are included at **Section 7.14**. These include woodland and hedgerow planting proposals that seek to address the requirement to promote coherent, resilient ecological networks. The results of the BNG assessment are set out in **Appendix 7.8**.

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
	vii. Wherever possible, piped water courses shall be re-opened and existing open water courses retained. *viii. Any flood attenuation ponds and new areas of recreational green space required as part of any new development shall be designed to encourage nature conservation and biodiversity.* *ix. Proposals for new development must include details of how the biodiversity and wildlife environment of the site would be enhanced.* *x. Development on land within or adjacent to the Sites of Special Scientific Interest in the Parish, the areas of Ancient Woodland and the Special Area of Conservation, and which is likely to have an adverse effect on it any of them (either individually or in combination with other developments), will not be supported. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest.*	

Consultation and Scoping

7.4.1.3 An EIA Scoping Opinion was requested from SODC in January 2023 through the submission of an EIA Scoping Report (refer to **Appendix 2.1**). The EIA Scoping Report contained details of the site baseline and the Proposed Development. It also proposed which environmental impacts would be assessed in the EIA, and the assessment methodologies that would be used.

7.4.1.4 SODC consulted with a variety of statutory and non-statutory consultees before providing an EIA Scoping Opinion on 29th March 2023 (Planning Reference: P23/S0203/SCO). This information has informed the EIA. The scope of this ES chapter is based on the Scoping Opinion received as included in **Appendix 2.2**. For clarity:

- Potential impacts to designated sites are scoped in:
- Priority habitats that may be impacted are scoped in;
- Protected species that are reasonably likely to be present and impacted are scoped in, this includes bats, dormice *Muscardinus avellanarius* , birds, badgers *Meles meles*, reptiles, hares *Lepus europaeus* and hedgehogs *Erinaceous europaeus*. There are three off-site ponds within 500m one of

which has not been subject to habitat suitability assessment or presence/ absence survey; the potential for GCN presence at the unsurveyed pond has therefore been presumed for the purpose of impact assessment. Impacts to other species, including (but not limited to) otter *Lutra lutra* and water vole *Arvicola amphibius* have been scoped out.

Scope and Methodology

7.4.1.5 The assessment scope has been informed by relevant national and local planning policy and guidance, established best practice and experience, as well as via the consultation process.

7.4.1.6 The EcIA contained within this chapter seeks to:

- establish baseline conditions and identify important ecological features present (or those that could be present);
- identify important ecological features that could be impacted by the project;
- identify potential effects and their significance; and
- provide details of proposed mitigation or compensation measures and enhancements).

7.4.1.7 The proposed project design is described in detail within **Chapter 4**: Project Description. The EcIA parameters are summarised in this chapter, in **Section 7.10**.

Study Area

7.4.1.8 Within this report the following terms are used:

- Study area: This is the 2 km zone around the Site boundary.
- Survey area: This is the 100 m zone around the Site boundary.
- Solar site: The two land parcels which border either side of the M40 motorway with the A40 to the east, Weston Road to the west and Salt land to the north; and
- Cable corridor: this extends approximately 3 km north from the solar site to the substation at Harlesford Solar Farm.

7.4.1.9 Areas other than these, which have been included in the EcIA (such as designated sites within 2 km), are specifically described.

Baseline Data Collection

7.4.1.10 Desktop studies and field surveys have been completed at the Site by SLR in 2024 and by Windrush Ecology, Ecoline and Ecology by Design in 2022-2024. The following reports, as summarised in **Table 7.2**, have subsequently been used

to inform this assessment; each is included as a technical appendix to this chapter.

Table 7.2 Details of Ecological Studies and Surveys

Report Name	Area Covered	Date	Baseline Data collected	Technical Appendix
Lewknor Grid Connection Preliminary Ecological Appraisal Report	Cable corridor plus surrounding 30 m (where accessible)	December 2024	Desk Study data within 2 km of the cable corridor boundary (protected sites and species) and up to 10 km for statutory designated sites. Habitat survey data, including condition assessment. Protected species walkover data.	**7.2**
Lewknor Solar Farm, Installation of Solar Array Preliminary Ecological Appraisal Report, Version 2	Solar site plus surrounding 100 m (where accessible)	June 2022	Desk Study Habitat survey data. Bat habitat assessment	**7.3**
Lewknor Solar, Habitat Report	Solar site	May 2024	Desk study data within 2 km of the solar site boundary (protected sites and species) and up to 10 km for statutory designated sites. Habitat survey including condition assessment Habitat suitability assessment for GCN at offsite ponds.	**7.4**
Lewknor Solar, Breeding Bird Survey Report	Solar site	March -July 2024	Breeding bird survey	**7.5**
Lewknor Solar, Dormouse Survey Report	Solar site	April – October 2024	Dormouse nest tube and nut search survey	**7.6**
CONFIDENTIAL: Land north of Lewknor, Badger Survey Report	Solar site	December 2022 – March 2023	Badger survey	**7.7**

7.5 Assessment Criteria and Assessment of Significance

7.5.1.1 Whilst **Chapter 2**: Approach to EIA provides an indicative EIA assessment matrix, it also identifies that assessment methodologies may differ in accordance with the prevailing technical area guidance and specific requirements of receptor groups. As such the following sections provide a description of the assessment criteria and assessment methodologies of relevance to ecology, which are derived from

best practice guidance documents applicable to this topic and differ from those presented in the broader EIA methodology chapter.

7.5.1.2 The ecological evaluation and impact assessment approach used in this report is based on CIEEM Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland ("CIEEM guidelines") (CIEEM, 2018), which are widely regarded as industry best practice.

Important Ecological Features

7.5.1.3 Ecological features can be important for a variety of reasons and the rationale used to identify them is explained below. Importance may relate, for example, to protected status, the quality or extent of a site or habitats therein; habitat and/ or species rarity; the extent to which such habitats and/ or species are threatened throughout their range, or to their rate of decline.

7.5.1.4 Important habitats are considered here to be those which:

- Match descriptions of habitats listed on Annex 1 of the Habitats Directive, so far as it applies to the UK and as transposed by The Conservation of Habitats and Species Regulations 2017 (as amended);
- match descriptions of Habitats of Principal Importance as outlined under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (DEFRA, 2022);
- Match descriptions of habitat selection criteria for Local Wildlife Sites in Oxfordshire;
- Comprise irreplaceable habitats (Government, 2024); such as (but not limited to) ancient woodland and veteran trees; and/ or
- Comprise a significant habitat resource for an important species (see below).

7.5.1.5 Important species are considered here to be those:

- Of European conservation importance (as listed on Annexes II, IV and V of the Habitats Directive or Annex 1 of the Birds Directive) so far as it applies to the UK and as transposed by The Conservation of Habitats and Species Regulations 2017 (as amended);
- Specially protected under the terms of the Wildlife and Countryside Act 1981 (as amended);
- Of principal importance for biodiversity as outlined under Section 41 of the NERC Act 2006;
- Match descriptions of species selection criteria for Local Wildlife Sites in Oxfordshire;
- Red listed or listed as near threatened using International Union for the Conservation of Nature (IUCN) criteria (IUCN, 2012; IUCN, 2016; IUCN 2019), e.g. in one of the UK Species Status Project reviews, or, where a more recent assessment of the taxonomic group has not yet been undertaken, listed in a Red Data Book);
- For birds, a potentially important population of a species which is red or amber listed in the UK (Eaton et al., 2015 and Stanbury et al., 2021);

- Which are listed as a Nationally Rare or Nationally Scarce species (e.g. in one of the Species Status Project reviews) or listed as a nationally notable species where a more recent assessment of the taxonomic group has not yet been undertaken; and/ or
- Endemic to a country or geographic location (it is appropriate to recognise endemic sub-species, phenotypes, or cultural behaviours of a population that are unique to a particular place.

7.5.1.6 The CIEEM guidelines state that the importance of an ecological feature should be considered within a defined geographical context. The following frame of reference is used:

- International;
- National (i.e. UK);
- Regional (i.e. south-east England);
- County (i.e. South Oxfordshire) and,
- Local (i.e. within circa 5 km of the Site boundary).

7.5.1.7 For the purposes of this assessment only ecological features of local importance or greater and/ or subject to legal protection are subject to detailed assessment (and are referred to as “important ecological features”). Effects on other ecological features of lower importance are considered unlikely to be significant in legal or policy terms so are not subject to detailed assessment

Impact Assessment

7.5.1.8 The impact assessment process involves the following steps:

- identifying and characterising potential impacts;
- incorporating measures to avoid and mitigate (reduce) these impacts;
- assessing the significance of any residual effects after mitigation;
- identifying appropriate compensation measures to offset significant residual effects (if required); and
- identifying opportunities for ecological enhancement.

7.5.1.9 When describing impacts, reference has been made to the following characteristics, as appropriate:

- Beneficial, adverse or negligible;
- Extent;
- Magnitude;
- Duration (short term <5 years, mid-term 5-10 years, long term >10 years);
- Timing;
- Frequency; and
- Reversibility.

7.5.1.10 The impact assessment process considers both direct and indirect impacts: direct ecological impacts are changes that are directly attributable to a defined action, e.g. the physical loss of habitat occupied by a species during the construction process. Indirect ecological impacts are attributable to an action, but which affect ecological resources through effects on an intermediary ecosystem, process or feature, e.g. the interruption of water courses which cause hydrological changes, which, in the absence of mitigation, could lead to the drying out of downstream habitats.

Significant Effects

7.5.1.11 The concept of ecological significance is addressed in paragraphs 5.24 through to 5.28 of the CIEEM guidelines. Significance is a concept related to the weight that should be attached to effects when decisions are made. For an ES Chapter, a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local and the scale of significance of an effect may or may not be the same as the geographic context in which the feature is considered important.

7.5.1.12 Paragraphs 5.29 – 5.34 of the CIEEM guidelines cover how significant effects are determined. To summarise:

- for designated sites – effects may be significant if they are likely to undermine the conservation objectives of the site; or positively or negatively affect the conservation status of species or habitats for which the site is designated; or may have affect the condition of the site or its interest/qualifying features.
- for ecosystems – effects may be significant if the project is likely to result in a change in ecosystem structure and function. Consideration should be given as to whether any processes or key characteristics will be removed or changed, if there will be an effect on the nature, extent, structure and function of component habitats or if there is an effect on the average population size and viability of component species.
- for habitats and species - consideration of conservation status is important for evaluating the effects of impacts on individual habitats and species and assessing their significance. Conservation status is defined as follows:
    - Habitats – conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area.
    - Species – conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

Potential Cumulative Effects

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

7.5.1.14 The key cumulative solar farm developments considered are shown within **Figure 4.2**, associated with **Chapter 4**: Project Description.

7.5.1.15 For ecological features potential cumulative impacts are only likely to be significant for other developments which:

- Are directly adjacent or very close to the Site and may affect the same habitats and species;
- Are located within the same hydrological catchment(s) so may be affected by water-borne sedimentation or pollution events; or
- Are located within the regular range of more mobile species, e.g. birds, bats and dormice.

7.5.1.16 The list of other developments for the cumulative assessment was therefore restricted to other development projects within 2 km, or within the Core Sustenance Zone distance of the most widely ranging bat species recorded at the Site. The cumulative assessment is based on consideration of residual effects, assuming that proposed mitigation and compensation measures for other projects are implemented.

7.5.1.17 The significance of potential cumulative effects has been determined using the same method adopted in the assessment of effects for the Proposed Development considered on its own. Cumulative effects are therefore considered likely to be significant if they undermine conservation objectives for important ecological features. Cumulative effects can be considered significant at a wide range of scales from international to local. For example, a likely significant cumulative effect on a regional population of a species is likely to be of regional significance.

Avoidance, Mitigation, Compensation and Enhancement

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

7.5.1.19 The purpose of avoidance, impact minimisation and compensation measures are to reduce the extent or magnitude of project impacts. The aim of these measures

is to reduce the project's adverse impacts such that there is no overall loss of biodiversity because of the project. The terminology has been defined as below:

- Avoidance: where an impact has been eradicated through, e.g. changes in project design.
- Mitigation: seeks to reduce and/ or eliminate the potential for significant effects to arise as a result of the project. Mitigation measures can be embedded (part of the project design) or secondarily added to reduce impacts in the case of potentially significant effects.
- Compensation: describes measures taken to offset residual effects resulting in the loss of, or permanent damage to, ecological features despite mitigation. For example, it may take the form of replacement habitat provision or improvements to existing habitats; and.
- Enhancement: provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures , although they can be complementary.

7.5.1.20 Within the EcIA, mitigation measures should be described clearly and their likely success assessed. When seeking mitigation or compensation solutions, the CIEEM guidelines state that efforts should be consistent with the geographical scale at which an effect is significant. For example, mitigation and compensation for effects on a species population significant at a county scale should ensure no net loss of the population at a county scale. The relative geographical scale at which the effect is significant will have a bearing on the required outcome which must be achieved.

7.6 Biodiversity Net Gain

7.6.1.1 Biodiversity Net Gain (BNG) is an approach to development activities that leaves the natural environment in a measurably better state than it was before. BNG works with and does not replace the mitigation hierarchy. It does not replace existing legal requirements (e.g., in relation to protected species) and it should not be applied to compensate for impacts on irreplaceable habitats.

7.6.1.2 In respect of the requirements of the Environment Act 2021, the proposal uses the Statutory Metric to demonstrate measurable Biodiversity Net Gain contribution. It is however worth highlighting here that since the metric is a proxy, it does not account for species-specific mitigation, compensation or enhancement.

7.6.1.3 The Statutory Metric uses a comparison of habitats as a proxy for biodiversity and describes these habitats using standard units referred to as Biodiversity Units (BUs). BUs are calculated using the size of a parcel of habitat and its quality. The overall calculation of the change in biodiversity resulting from a project or development is made by subtracting the value of pre-project or 'baseline' BUs of an area of land from the number of post-project units. Post-project units incorporate temporary and permanent losses resulting from the project, along with the value of any mitigation, compensation and enhancement proposals include as

part of the project. It is a requirement of the Environment Act 2021 that habitat required to deliver BNG must be secured for at least 30 years.

7.6.1.4 The results of the proposed development's BNG assessment using the Statutory Metric is set out in detail **Appendix 7.8**.

7.7 Uncertainties and limitations

7.7.1.1 No significant limitations were associated with the field surveys. Please refer to the survey reports in **Appendices 7.2-7.7** for details in respect of the main assumptions and limitations associated with each. Limitations associated with each survey type are also summarised below.

Habitat Survey (Appendix 7.2)

7.7.1.2 **Cable corridor only:** The presence of the M40 prevented access to areas immediately adjacent to the Site boundary. The survey was undertaken in early December, which is a sub-optimal time to undertake habitat surveys. This is not considered a significant constraint to the habitat survey due to the agricultural / intensively managed nature of the habitats present; sufficient data has been obtained for the purpose of this EcIA.

Breeding bird survey (Appendix 7.5)

7.7.1.3 One survey visit out of the six did not access parts of the solar site that had been subject to spraying. However, as this area was fully accessed during the remaining five surveys, sufficient data has been gathered such that this is not considered that this will impact the overall assessment.

Dormouse Survey (Appendix 7.6)

7.7.1.4 12.2% of the tubes deployed were either not able to be located or were damaged. However, the quantity of boxes surveyed far exceeds the 50 boxes or tubes recommended in industry standard guidance to confirm presence/likely absence, therefore the damaged or missing boxes is not considered to have constrained the survey findings.

Badger Survey (Appendix 7.7)

7.7.1.5 No limitations reported.

Impact Assessment

7.7.1.6 There are differences in survey effort between the cable corridor and the solar site; the solar site has been the subject of more detailed study. In particular, the cable corridor has not yet been subject to the surveys recommended in the PEA at **Appendix 7.2**, this includes habitat suitability assessment and GCN eDNA survey at one pond, and habitat condition assessment at the appropriate time of year (both of which are ongoing at the time of writing).

7.7.1.7 Both these limitations have been taken into account in the evaluation of important ecological features and assessment of impacts, and the precautionary principle

applied as appropriate. There is considered to be sufficient ecological data for the purpose of impact assessment, such that this is not considered to be a limitation to the scope of the EcIA set out in **Section 0**.

7.8 Current Baseline

General Context

7.8.1.1 The Proposed Development is located approximately 50 m south of the village of Postcombe, 450 m north of the village of Lewknor and 4.3 km south of the town of Thame. The Site consists of two land parcels which border either side of the M40 motorway, with the A40 to the east, Weston Road to the west and Salt Lane to the north. The Site also includes a 'cable corridor' which extends for approximately 3 km from the substation at the solar site to the substation at Harlesford Solar Farm. Refer to **Appendix 7.1** which shows the Site boundary.

7.8.1.2 The Site area is approximately 97.5 hectares (ha) including the proposed cable corridor. The Site is predominantly used for arable agricultural purposes with small sections of woodland. The Site is largely enclosed by trees and hedgerows with more open sections to the north and north-east.

Designated Sites

7.8.1.3 **Figure 7.1** shows the location of statutory designated sites in relation to the project. Summary descriptions for each site and a brief rationale for scoping sites in or out of assessment are provided in **Table 7.3** and **Table 7.4** respectively. No details for non-statutory sites such as Local Wildlife Sites were returned as part of any of the desk study data searches.

Table 7.3 Designated Sites scoped in to the assessment

Name & Designation	Approximate distance and direction from Site	Reason for notification/ designation	Reason for scoping in
Aston Rowant SAC	1.3 km south-east	Annex I habitats that are a primary reason for selection of this site: 5130 Juniperus communis formations on heaths or calcareous grasslands Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: 9130 Asperulo-Fagetum beech forests Aston Rowant is one of the largest surviving complexes of beech woodland, mixed scrub, juniper and chalk grassland in the Chilterns.	The Site lies within the Impact Risk Zone for Aston Rowant NNR and Aston Rowant SSSI which underpin the SAC. However, the development does not fall into any of the categories required for the LPA to consult with Natural England on potential impacts on the SSSI. Indirect impacts possible if habitats on Site are used by notified/ designated species populations associated with the SAC.
Aston Rowant Woods SSSI	1.3 km south-east	The Aston Rowant Woods complex is of national importance as a large, unfragmented area of ancient semi-natural woodland characteristic of the Chilterns scarp.	The Site lies within the Impact Risk Zone for Aston Rowant NNR and Aston Rowant SSSI. However, the development does not fall into any of the categories required for the LPA to consult with Natural England on potential impacts on the SSSI. Indirect impacts possible if habitats on Site are used by notified/ designated species populations associated with the SSSI.
Aston Rowant NNR	1.3 km south-east	The reserve's diverse habitats support a variety of bird life including large flocks of finches and winter visitors such as fieldfare *Turdus pilaris* and redwing *T. iliacus*. Red kite *Milvus milvus*, wheatear *Oenanthe oenanthe*, whitethroat *Sylvia communis* and blackcap *S. atricapilla* have been recorded.	As above.
Chilterns Beechwoods SAC	2.1 km east-south-east	Annex I habitats that are a primary reason for selection of this site: 9130 Asperulo-Fagetum beech forests Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: 6210 Semi-natural dry	The scoping response from BBOWT raised concerns that the proposed development has the potential for adverse effects on species living within the Chilterns Beechwood SAC.

Name & Designation	Approximate distance and direction from Site	Reason for notification/ designation	Reason for scoping in
		grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) Annex II species present as a qualifying feature, but not a primary reason for site selection: 1083 Stag beetle Lucanus cervus The Chilterns Beechwoods represent a very extensive tract of ancient semi-natural beech Fagus sylvatica forests in the centre of the habitat's UK range. The woodland is an important part of a mosaic with species-rich chalk grassland and scrub. A distinctive feature in the woodland flora is the occurrence of the rare coralroot *Cardamine bulbifera*. Standing and fallen dead timber provide habitat for dead-wood (saproxylic) invertebrates, including stag beetle *Lucanus cervus*.	Indirect impacts possible if habitats on Site are used by notified/ designated species populations associated with the SAC.

Table 7.4 Designated Sites scoped out of the assessment

Name & Designation	Approximate distance and direction from Site	Reason for notification/ designation	Reason for scoping out
Shirburn Hill SSSI	2.3 km south	Site supports a proportion of herbs to grasses. Notable features are the presence of plants of acid conditions on the top of the hill including heather *Calluna vulgaris*, tormentil *Potentilla erecta*, heath speedwell *Veronica officinalis* and bracken. Other notable plants present include wild candytuft *Iberis amara*, biting stonecrop *Sedum acre*, pale toadflax *Linaria repens*, chalk eyebright *Euphrasia pseudokerneri* and valerian *Valeriana officinalis*.	Separation distance between the SSSI and the Site, and lack of impact pathways (such as hydrological links) between the two. Habitats on Site are not suitable to support any of the designated features of interest, and therefore cannot be critical to sustaining the population.
Knightsbridge Lane SSSI	2.7 km south-west	Site supports a population of green hounds' tongue *Cynoglossum germanicum.* The population here is large in the local context and the number of plants has not changed significantly over the years. There is evidence of spread outside the SSSI boundary as additional groups of plants now occur on steep, chalky roadside banks further to the north.	Separation distance between the SSSI and the Site, and lack of impact pathways (such as hydrological links) between the two. Habitats on Site are not suitable to support any of the designated features of interest, and therefore cannot be critical to sustaining the population.
Wormsley Chalk Banks SSSI	2.9 km south-east	The SSSI contains three types of chalk grassland of varying character. Notable plant species recorded at the SSSI include chalk eyebright, early gentian *Gentianella anglica*, Wild candytuft, and Chiltern Gentian *Gentianella germanica*. Mezereon *Daphne mezereum* has also been recorded associated with scrub, rather than chalk grassland. A list of flowering plants was noted during the visit which included Marjoram, clustered bellflower *Campanula glomerata*, rough hawkbit *Leontodon saxatilis*, field scabious *Knautia arvensis*, selfheal *Prunella vulgaris*, pyramidal orchid	Separation distance between the SSSI and the Site, and lack of impact pathways (such as hydrological links) between the two. Habitats on Site are not suitable to support any of the designated features of interest, and therefore

Name & Designation	Approximate distance and direction from Site	Reason for notification/ designation	Reason for scoping out
		Anacamptis pyramidalis, common agrimony *Agrimonia eupatoria*, wild thyme *Thymus polytrichus*, salad burnet *Sanguisorba minor*, carline thistle *Carlina vulgaris*, perforate St John's wort *Hypericum perforatum*, yellow rattle *Rhinanthus minor*, common knapweed *Centaurea nigra*, cowslip, bird's foot trefoil, dwarf thistle *Cirsium acaule*, eyebright *Euphrasia officinalis*, wild carrot *Daucus carota*, and wild basil *Clinopodium vulgare*.	cannot be critical to sustaining the population.
Spartum Fen SSSI	3.4 km west-north-west	An isolated alkaline fen which supports a number of specialised invertebrates and plants. The habitat is highly sensitive to changes in groundwater supply and natural habitat succession to woodland. The central open area which still supports remnant lowland fen habitat has encroaching scrub and saplings (birch *Betula pendula* and sallow *Salix caprea*) and is dominated by pond sedge and hemp agrimony. Blunt-flowered rush *Juncus subnodulosus* is locally frequent in the fen area and a few plants of greater bird's-foot trefoil *Lotus corniculatus* and marsh valerian are also present. Several species of hoverfly and cranefly associated with wetland habitats were recorded in the proposed fen restoration area, including the notable cranefly *Gnophomyia viridipennis* indicating that the fen remains important for specialised insects.	Separation distance between the SSSI and the Site, and lack of impact pathways (such as hydrological links) between the two. Habitats on Site are not suitable to support any of the designated features of interest, and therefore cannot be critical to sustaining the population.
Chinnor Chalk Pit SSSI	3.6 km east	Geological site.	Site is of geological interest only.
Watlington and Pyrton Hills SSSI	3.6 km south	The downland on Watlington Hill consists of short, species-rich rabbit-grazed turf. Broadleaved plants include rock-rose, yellow-wort, cowslip, dropwort, together with large populations of horseshoe vetch, kidney vetch and squinancy wort. The nationally rare candytuft, a plant which has its British distribution centred on the western scarp of the Chilterns, is a notable species of the sward. Other uncommon species include bee orchid *Orchis (apifera)* and frog orchid. There is an exceptional lichen flora associated with the calcareous soils. One area, the ancient dyke crossing the site from east to west, has one of the most diverse moss and liverwort floras in the Chilterns, with 50 species recorded including *Rhodobryum roseum, Scapania aspera, Weissia tortilis, Frullania*	Separation distance between the SSSI and the Site, and lack of impact pathways (such as hydrological links) between the two. Habitats on Site are not suitable to support any of the designated features of interest, and therefore cannot be critical to sustaining the population.

Name & Designation	Approximate distance and direction from Site	Reason for notification/ designation	Reason for scoping out
		tamarisci and Hypnum cuppressiforme ssp. lacunosum. Watlington and Pyrton Hills have a notable butterfly fauna with twenty species recorded. Of particular note is the strong population of the silver-spotted skipper *Hesperia comma* which is a rare and declining species in Great Britain. Other butterflies occurring include chalkhill blue *Lysandra coridon*, small blue *Cupido minimus*, brown argus *Aricia agestis*, green hairstreak *Callophrys rubi* and dark green fritillary *Argynnis aglaja.*	
Chinnor Hill SSSI	4.8 km east	The chalk grassland supports a rich calcicolous sward in which meadow oatgrass *Avenula pratensis* is abundant, together with hairy oat-grass A. pubescens, small cat's-tail *Phleum bertolonii* and narrow-leaved meadow grass *Poa angustifolia*. False oat-grass *Arrhenatherum elatius* occurs in less heavily grazed areas. Herbaceous plants present include yellowwort, autumn gentian *Gentianella amarella*, horseshoe vetch, kidney vetch, carline thistle, pyramidal orchid and bee orchid *Ophrys apifera*. Of particular note are candytuft, a species which in Britain is largely confined to Oxfordshire and Buckinghamshire, Chiltern gentian, a plant associated with the southern chalk and with a distribution centred on the Chilterns, and frog orchid which is uncommon in Oxfordshire.	Separation distance between the SSSI and the Site, and lack of impact pathways (such as hydrological links) between the two. Habitats on Site are not suitable to support any of the designated features of interest, and therefore cannot be critical to sustaining the population.
Swain's Wood SSSI	6.4 km south-south-east	The site occupies the upper stretches of a classic dry valley and contains chalk grassland and scrub, flanked on two sides by woodland. The grassland is exceptionally rich in both plant and invertebrate species, and several national rarities are present. The woodlands are unusual for the Chilterns in that, although some beech is present, there are parts where a more mixed canopy prevails.	Separation distance between the SSSI and the Site, and lack of impact pathways (such as hydrological links) between the two. Habitats on Site are not suitable to support any of the designated features of interest, and therefore cannot be critical to sustaining the population.
Lodge Hill SSSI	7.2 km east	An isolated hill in the Risborough Gap of the Chilterns, known for its archaeological interest and supporting a range of chalk grassland and scrub	Separation distance between the SSSI and the Site, and lack of

Name & Designation	Approximate distance and direction from Site	Reason for notification/ designation	Reason for scoping out
		communities. The grasslands support various chalkland butterflies and other invertebrates. The mixed scrub contains the remnants of a colony of juniper which dominated Lodge Hill around the turn of the century, and provides excellent cover for birds and mammals.	impact pathways (such as hydrological links) between the two. Habitats on Site are not suitable to support any of the designated features of interest, and therefore cannot be critical to sustaining the population.
Swyncombe Downs SSSI	7.3 km south-south-west	The grasslands include ancient species-rich sheep's fescue *Festuca ovina* turf heavily grazed by rabbits, alternating with rank stands of tall oat-grass *Arrhenatherum elatius*, both occupying slopes of various aspect and gradient. There are also sparse, herb-dominated swards indicative of former ploughing on the thinner soils. Notable very local plants include bastard toadflax *Thesium humifusum* and wild candytuft, while other species of interest are crested hairgrass *Koeleria macrantha,* small scabious *Scabiosa columbaria*, creeping toadflax *Linaria repens*, valerian, felwort *Gentianella amarella* and pyramidal orchid. The site is outstanding for its butterflies and moths. Butterflies include silver spotted *Epargyreus clarus*, grizzled *Pyrgus malvae* and dingy skippers *Erynnis tages* (the first of these a national rarity), as well as dark green fritillary *Argynnis aglaia*. Day-flying moths include the cistus forester *Procris geryon*, chimney sweeper *Odezia atrata* and wood tiger *Parasemia plantaginis.*	Separation distance between the SSSI and the Site, and lack of impact pathways (such as hydrological links) between the two. Habitats on Site are not suitable to support any of the designated features of interest, and therefore cannot be critical to sustaining the population.
Pishill Woods SSSI	7.6 km south	This site consists of two areas of semi-natural ancient woodland which contain a range of stand types typically associated with the Chilterns scarp. The ground flora is rich, with over thirty-five species associated with ancient woodlands including several species uncommon in the Chilterns. The structure of the two areas reflects contrasting traditional management practices and provides a range of important habitats for invertebrates.	Separation distance between the SSSI and the Site, and lack of impact pathways (such as hydrological links) between the two. Habitats on Site are not suitable to support any of the designated features of interest, and therefore

Name & Designation	Approximate distance and direction from Site	Reason for notification/ designation	Reason for scoping out
			cannot be critical to sustaining the population.
Turville Hill SSSI	8.4 km south-east	A steep slope of mainly south-westerly aspect, well known for its windmill and spectacular views of the Turville and Hambleden valleys, and containing the largest and finest example of grazed chalk grassland remaining in the southern part of the Buckinghamshire Chilterns. There is an exceptional variety of attractive plants, and the invertebrate fauna includes two rare and declining butterfly species of national importance.	Separation distance between the SSSI and the Site, and lack of impact pathways (such as hydrological links) between the two. Habitats on Site are not suitable to support any of the designated features of interest, and therefore cannot be critical to sustaining the population.
Bix Bottom SSSI	9.8 km south	This site is a complex mosaic of ancient woodland (shown on maps of 1768), secondary woodland and open habitats. The site has a variety of soil types and supports an exceptionally rich flora and fauna. Over 500 species of vascular plants have been recorded, including eighteen species of orchid and over fifty plant species which, in southern England, are characteristic of ancient woodland. There is a diverse invertebrate fauna which includes several rare butterflies, moths, flies and molluscs.	Separation distance between the SSSI and the Site, and lack of impact pathways (such as hydrological links) between the two. Habitats on Site are not suitable to support any of the designated features of interest, and therefore cannot be critical to sustaining the population.
Berrick Trench SSSI	9.9 km south	This small site is an ancient semi-natural calcareous beech woodland with a structure and composition now rare in the Chilterns. It contains at least 34 plant species which are normally confined to ancient woodland, some of which are uncommon in the Oxfordshire Chilterns.	Separation distance between the SSSI and the Site, and lack of impact pathways (such as hydrological links) between the two. Habitats on Site are not suitable to support any of the designated

Name & Designation	Approximate distance and direction from Site	Reason for notification/ designation	Reason for scoping out
			features of interest, and therefore cannot be critical to sustaining the population.
Cuttle Brook LNR	4.4 km north	The site was purchased by Thame Tome Council in 1978 and become a LNR in 1955. There are two meadow areas (west and Nontron), with each own character and community of plant. The west meadow has a variety of gasses and flowers including ox-eye daisy *Leucanthemum vulgare*, clover *Trifolium* sp. and meadow pea *Lathyrus pratensis*. The Nontron meadow has a variety of gasses and flowers such lady's smock *Cardamine pratensis*. The Cuttle Brook flows thought the centre of the LNR, and the pond was created in 1996 with kingfisher *Alcedo atthis* and water-boatman *Corixidae* sp. can be seen (Cuttlebrook.org.uk, 2018).	Separation distance between the SSSI and the Site, and lack of impact pathways (such as hydrological links) between the two. Habitats on Site are not suitable to support any of the designated features of interest, and therefore cannot be critical to sustaining the population.
Watlington Chalk Pit LNR	4.3 km south-south-west	Supports a mosaic of chalk downland, chalk scrub, mixed broadleaved and yew woodland habitats, with areas of leached and more acid grassland and scrub on the upper slopes. The site supports some of the most floristically diverse grassland in the Chilterns and is also notable for its lower plant flora and butterfly populations. Broadleaved plants include rock-rose *Helianthemum nummularium*, yellow-wort *Blackstonia perfoliate*, cowslip *Primula veris*, dropwort, together with large populations of horseshoe vetch *Hippocrepis comosa*, kidney vetch *Anthyllis vulneraria* and squinancy wort *Asperula cynanchica*. The nationally rare candytuft, a plant which has its British distribution centred on the western scarp of the Chilterns, is a notable species of the sward. Other uncommon species include bee orchid *Orchis apifera* and frog orchid *Coeloglossum viride*.	Separation distance between the SSSI and the Site, and lack of impact pathways (such as hydrological links) between the two. Habitats on Site are not suitable to support any of the designated features of interest, and therefore cannot be critical to sustaining the population.
Snakemoor LNR	8.4 km north	In 1999 English Nature designated the site to be a Local Nature Reserve. In 2002 Haddenham Parish Council purchased a lease for 125 years to ensure the land is maintained as nature reserve. The site is 4.5 acres and is linked with footpaths, a hay meadow, a pond, an orchard and a variety of trees. The Hay Meadow was introduced to encourage	Separation distance between the SSSI and the Site, and lack of impact pathways (such as hydrological links) between the two.

Name & Designation	Approximate distance and direction from Site	Reason for notification/ designation	Reason for scoping out
		the flowering of meadow plants such as fritillaries, meadow cranesbill *Geranium pratense*, campion, orange hawkweed *Pilosella aurantiaca* and lesser knapweed *Centaurea nigra*. A variety of fungi these include: blushing blanket *Daedaleopsis confragosa*, soft slipper toadstool *Crepidotus mollis*, dryads saddle *Cerioporus squamosus*, ear fungus *Auricularia auricula-judae*, glistening inkcap *Coprinellus micaceus* and *Ganoderma adspersum*. There are 25 bird boxes to encourage birds to nest there. Breeding birds such as blackcap, blue *Cyanistes caeruleus* and great tit *Parus major*, bullfinch *Pyrrhula pyrrhula*, chaffinch *Fringilla coelebs*, dunnock *Prunella modularis*, kestrel *Falco tinnunculus*, mistle thrush *Turdus viscivorus*, willow warbler *Phylloscopus trochilus* and skylark *Alauda arvensis.* (www.haddenham-bucks-pc.gov.uk. (n.d.))	Habitats on Site are not suitable to support any of the designated features of interest, and therefore cannot be critical to sustaining the population.
Ewelme Watercress Beds LNR	9.4 km south-west	The Watercress Beds are chalk stream fed all year round by spring water from the Chilterns at a constant temperature of 10 degrees C. There are water voles and a variety of plants and invertebrates to be found on site.	Separation distance between the SSSI and the Site, and lack of impact pathways (such as hydrological links) between the two. Habitats on Site are not suitable to support any of the designated features of interest, and therefore cannot be critical to sustaining the population.

Ancient Woodland, Veteran trees and Irreplaceable Habitats

7.8.1.4 The MAGIC website (https://magic.defra.gov.uk/) confirmed the presence of three areas of ancient woodland within 1 km of the Site. These are all located more than 200 m south of the cable corridor as shown on **Figure 7.3**. No other irreplaceable habitat has been identified.

7.8.1.5 Two ash *Fraxinus excelsior* trees located toward the northern end of the cable corridor, adjacent to woodland near the M40 (refer to **Figure 7.3** for location and **Appendix 7.2** for details) are potentially considered veteran, due to the presence of decay holes, bark loss, dead wood and damage. These are referenced as T41 and T42 in the Arboricultural report (refer to **Appendix 2.5)**

Habitats

7.8.1.6 Table 7.5 below and **Figure 7.2** show the habitat types present within the Site (further details are provided in the individual reports at **Appendices 7.2-7.4**).

Table 7.5 Habitats present within the Site

UKHab Primary Code	Habitat Type	Area (ha)
c1	Arable and horticulture	1.80
c1c	Cereal crops	75.87
c1d	Non-cereal crops	4.80
g3c	Other neutral grassland	1.76
g3c5	Arrhenatherum neutral grassland	0.46
g4	Modified grassland	3.01
h2a	**Hedgerow (priority habitat)**	-
r2	Rivers and streams (ditches)	-
u1b	Developed land; sealed surface	4.67
u1b5	Buildings	0.00
u1b6	Other developed land	0.61
w1g	Other woodland; broadleaved	2.41
w1h5	Other woodland; mixed; mainly broadleaved	0.45
w2c	Other coniferous woodland	0.06

7.8.1.7 The above primary habitat types also include secondary habitats such as (but not limited to) scattered trees, details of secondary habitats for each habitat polygon or line feature are included in **Appendices 7.2-7.4**. **Figure 7.3** shows the type and location of important habitats within the Survey Area, including secondary habitat

codes for each. It also includes the locations of notable plant species recorded during field survey (refer to **Section 0**).

Species

7.8.1.8 The following sections are based on a combination of desk study information and field survey data to provide an assessment of the value of the habitats present within the relevant survey areas for each species or group of species.

Plants

Invasive Non-native Species

7.8.1.9 Invasive Non-native Species (INNS) of plants are those listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) or Schedule 2 of the Invasive Alien Species (Permitting and Enforcement) Order 2019.

7.8.1.10 The data search from TVERC in April 2024 returned five records of INNS plants within 2 km of the solar site, including rhododendron *Rhododendron sp* (see **Appendix 7.5** for further details). The data search from TVERC in December 2024 returned no records of INNS plants within 1 km of the cable corridor route (see **Appendix 7.3** for further details).

7.8.1.11 Rhododendron and variegated yellow archangel *Lamium galeobdolon subsp. argentatum* were recorded in in a hedge at the northern boundary of the solar site during the habitat survey in 2024. No INNS plants were found during the field survey of the cable corridor.

Notable plant species

7.8.1.12 The data search from TVERC in April 2024 returned 102 records of 49 protected plant species within 2 km of the solar site. Most of these records relate to Aston Rowant SSSI/NNR (see **Appendix 7.4** for further details).

7.8.1.13 White helleborine *Cephalanthera damasonium* was recorded during the habitat survey of the solar site in 2024 (see **Appendix 7.4** for further details). This is a Species of Principal Importance under Section 41 (S41) of the NERC Act 2006 and is listed as Vulnerable in England (Stroh *et al* , 2014). It is protected under Section 13 of the WCA 1981 (as amended) from intentional and unauthorised uprooting.

7.8.1.14 During the 2022 habitat survey (see **Appendix 7.3** for further details), bee orchids *Ophrys apifera* were recorded within the arable margins of the Site. Bee orchids are protected under Section 13 of the WCA 1981 (as amended) from intentional and unauthorised uprooting. Bee orchids are classed as occasional to frequent within England and are species of least concern.

7.8.1.15 It should be borne in mind that exhaustive searching for particular species has not been undertaken, and as plants may only be evident at certain times of year the presence of additional species remains a possibility. This has been accounted for

in the evaluation and assessment of impacts; the field survey and desk study information are considered adequate for the purpose of EIA.

Amphibians

7.8.1.16 The data search for the solar site retuned one record of common toad (*Bufo bufo*) within 2 km of the Site. This species is listed under S41 of the NERC Act 2006. The data search from TVERC returned 17 records of great crested newt (GCN) (*Triturus cristatus*) and two records of common toad within 1 km of the cable corridor route. The closest of these was a GCN record 0.3 km north of the Site.

7.8.1.17 The MAGIC website returned no European protected species licences (EPSLs) for GCN within 2 km of the solar site but returned nine EPSLs within 1 km of the cable corridor route. The closest of these was 0.8 km north.

7.8.1.18 There are no ponds in the Site, however, there are six ponds within 500 m of the Site. Of these, three are east of the M40 which is considered a major barrier to amphibian dispersal. The three others comprise:

- a pond located 80 m west of the cable corridor route which was recorded as being suitable for GCN, with emergent and aquatic vegetation (see **Figure 7.2** for location and **Appendix 7.2** for further details).
- Two ponds, located within 100 m of the solar site, were subject to a HSI assessment and were found to have ‘poor’ and ‘below average’ suitability for GCN (see **Appendix 7.4** for further details).

7.8.1.19 Regularly disturbed agricultural habitats at the Site are unsuitable for sheltering GCN during the terrestrial phase of their life cycle; habitats that are potentially suitable for use by sheltering GCN are limited to the areas at the field boundaries. Consultation with the NatureSpace impact risk zone maps (NaureSpace, undated) identified that the Site falls within white/green risk zone. This indicates that the Site is of low-moderate suitability for great crested newts which, combined with the HSI scores of two of the three nearby ponds suggests a low possibility of GCN being present in suitable habitats within Site.

7.8.1.20 Nevertheless, since the potential presence of GCN cannot be ruled out, this has been accounted for in the evaluation and assessment of impacts; the field survey and desk study information are considered adequate for the purpose of EIA.

Birds

7.8.1.21 The data search returned 744 records of 56 bird species within 2 km of the solar site, and 198 records of 39 species of bird within 1 km of the cable corridor route.

7.8.1.22 The Site’s arable field hedgerows and woodland strips support an assemblage of breeding birds typical of such habitats in Oxfordshire. The breeding bird survey at the solar site (refer to **Appendix 7.5** for details) recorded a total of 67 species of

these 27 species were confirmed/ probable breeders. Details for notable species with territories within the solar site are summarised in the table below.

Table 7.6 Notable bird species confirmed/ probably breeding within solar site

Species	Conservation Status[2]	Territories/ Pairs
Dunnock *Prunella modularis*	S41, BOCC Amber	6
House sparrow *Passer domesticus*	S41 BOCC Amber	1
Skylark *Alauda arvensis*	S41, BOCC Red	18
Song thrush *Turdus philomelos*	S41, BOCC Red	4
Wren *Troglodytes troglodytes*	BOCC Amber	13
Greenfinch *Chloris chloris*	BOCC Red	2
Grey Partridge *Perdix perdix*	Sch1, BOCC Amber	1
Mistle thrush *Turdus viscivorus*	BOCC Red	1
Reed bunting *Emberiza schoenliclus*	S41, BOCC Amber	1
Stock dove *Columba oenas*	BOCC Amber	2
Whitethroat *Curruca communis*	BOCC Amber	2
Woodpigeon *Columba palumbus*	BOCC Amber	6

7.8.1.23 All confirmed breeding species, probable breeders and possible breeders are abundant, common or fairly common in Oxfordshire according to the Oxfordshire county list, with the exception of red kite *Milvus milvus*. Red kite is classed as uncommon, but it should be noted that since this list was last updated in 1997 red kite has become significantly more common across Oxfordshire following its successful re-introduction in the county.

7.8.1.24 Red kite were also observed flying over the cable corridor, and one of the veteran ash trees noted in **Section 0** is considered potentially to support barn owl *Tyto alba*, based on the presence of multiple owl pellets and small mammal skulls located at its base (refer to **Appendix 7.2** for details).

7.8.1.25 Red kite (possible breeder at the solar site) and barn owl (possible breeder at the solar site and/ or the cable corridor) are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

Bats

7.8.1.26 TVERC returned records of at least five bat species within 2 km of the Site, including common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, Myotis species, noctule *Nyctalus noctula* and brown long-

[2] Sch1 = listed on Schedule 1 of the Wildlife an Countryside Act 1981 (as amended), S41 = Listed in Section 41 of the NERC Act 2006, BOCC = Birds of Conservation Concern 5

eared bat *Plecotus auritus.*The MAGIC website returned three EPSLs within 2 km of the Site, as summarised **Table 7.7**.

Table 7.7: European Protected Species Licences for Bats within 2 km

Reference	Species	Maternity Roost?	Approximate distance from Site (km)	Expiry
2014-4287-EPS-MIT	Brown long-eared bat and Common pipistrelle	N	0.92 south-west	31/03/2021
EPSM2011-2844	Brown long-eared bat and Common pipistrelle	Y	0.74 north-east	30/09/2014
2016-23523-EPS-MIT	Brown long-eared bat and Common pipistrelle	N	1.8 north-east	30/06/2021

7.8.1.27 There are no buildings or structures on Site that could be used by roosting bats. Two ash trees were identified as having potential for multiple roosting bats (the veteran ash already mentioned and shown on **Figure 7.3** with further detail in **Appendix 7.2**).

7.8.1.28 The bulk of the solar site consists of agricultural land and poor-quality grassland which offer minimal suitability for foraging and commuting bats. However, the Site is surrounded by hedgerows and woodland belts which provide potential commuting routes across the surrounding landscape. In addition, there are field margins and mature trees which offer some foraging opportunities. The Site was therefore assessed as having moderate suitability for foraging and commuting bats.

7.8.1.29 Further, more detailed survey in respect of roosting or foraging bats has not been undertaken. This has been accounted for in the evaluation and assessment of impacts; the field survey and desk study information are considered adequate for the purpose of this EcIA.

Badger – *Confidential to be removed if going into the public domain*

7.8.1.30 [redacted]

7.8.1.31 [redacted]

[redacted]

Hazel Dormouse

7.8.1.32 TVERC data returned two records of dormice within 2 km, which occur 0.45 km south-west of the Site.

7.8.1.33 The solar site was subject to dormouse surveys in 2024, and no dormice were recorded (see **Appendix 7.6)**. Dormice are assumed to be absent from the Site at the current time, but given the presence of local records, suitable habitat, and their mobile nature, future presence cannot be ruled out.

Other notable fauna

7.8.1.34 Records for brown hare *Lepus eruropaeus*, hedgehog *Erinaceous europaeus*, polecat *Mustela putorius*, common lizard *Zootoca vivpara* and slow worm *Anguis fragilis*, were returned as part of the desk studies. Woodland, hedges and field boundaries represent suitable habitat for these species and their potential presence has been assumed in such areas.

Summary of Important Ecological Features

7.8.1.35 A summary of the importance of ecological features on Site is provided in **Table 7.8.** Where features are not included in the table these are valued below local importance, which in line with CIEEM guidelines, are not subject to detailed assessment. These will not be discussed further in this report except where such feature is legally protected and the Proposed Development could be in contravention with relevant legislation.

Table 7.8: Summary of Important Ecological Features

Important Ecological Feature	Reason for Importance	Scale at which feature is important
Aston Rowant SAC, SSSI, NNR	Statutory designated site	International
Chiltern Beechwoods SAC	Statutory designated site	International
Ancient Woodland	Irreplaceable habitat (Government, 2024), but undesignated and relatively common in the County.	Local
Veteran ash trees	Irreplaceable habitat[Error! Bookmark not defined.] but undesignated and relatively common in the County. Two veteran ash trees are located adjacent to the cable corridor/ M40.	Local
Hedgerow (h2a)	S41 Habitat The hedgerows in the Site support breeding bird populations and are likely to be used by a variety of other species either currently or in future for shelter, commuting and/ or breeding,	Local

Important Ecological Feature	Reason for Importance	Scale at which feature is important
	Most hedgerows within the Site are species poor, but one is species rich with trees.	
Notable plant species: White helleborine and bee orchid	Noted at one location within the Site. White helleborine is a S41 species. Both species are protected under Section 13 of the WCA 1981 (as amended) from intentional and unauthorised uprooting.	Local
Invasive plants: Rhododendron and variegated yellow archangel	Present within one hedgerow at the Site Included on Schedule 9 of the WCA 1981. Illegal to cause the spread of these species.	N/A
Great Crested Newt	GCN is protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and in Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended), it is also a S41 species. There are three ponds within 500 of the Site, and there is potential for uncultivated habitats at the Site to support foraging and/ or sheltering GCN during the terrestrial phase of their life cycle. In the absence of detailed presence/ absence data for the nearby ponds, GCN presence has been assumed within the limited amounts of suitable habitat present at the Site.	Local
Breeding Birds	All nesting wild birds are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. In addition to this, for some rarer species (listed on Schedule 1 of the Act), it is an offence to disturb them whilst they are nest building or at or near a nest with eggs or young, or to disturb the dependent young of such a bird. The Site supports an assemblage of 27 confirmed/ probable breeding species of farmland birds that are typical of the region. It is of particular note that the solar site supports 18 skylark territories. In addition two Schedule 1 species (barn owl and red kite) are possible breeders within the Site.	Assemblage: Local Skylark: District
Bats	All UK bat species are protected through inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). Common pipistrelle, soprano pipistrelle, brown long-eared bat and noctule are also S41 species Five species of bat have been recorded locally; common pipistrelle, soprano pipistrelle and brown long eared bat are all considered widespread locally, noctule and Myotis species “widespread in many geographies but not as abundant in all” (Reason and Wray, 2023). The habitats at the Site are suitable for foraging and/ or commuting. The Site includes trees that may be used by roosting bats, with	County

Important Ecological Feature	Reason for Importance	Scale at which feature is important
	two trees noted that could be used by multiple roosting bats. In the absence of detailed roost presence/ absence data for the trees, the precautionary principle has been applied and the presence of a maternity colony of noctule or Myotis sp assumed. The geographical scale of importance provided for such a roost is as per Reason and Wray (2023).	
Badger	Badgers are protected under the Protection of Badgers Act 1992 for welfare rather than nature conservation reasons. Badgers are widespread and commonly occurring in south Oxfordshire.	Site
Hazel dormouse	Protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). Dormouse is also a S41 species. Dormice are assumed to be absent from the Site at the current time, but given the presence of local records, suitable habitat, and their mobile nature, future presence cannot be ruled out.	Site
Brown hare, hedgehog, polecat, common lizard, slow worm	S41 species. In addition, slow worm and common lizard are protected from intentional killing, injuring and sale under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) . Not surveyed but unusually large populations are considered unlikely to be present within the survey area based on the habitats present and desk study data and therefore populations are unlikely to be of more than local value.	Local

7.8.1.36 All remaining ecological features within the study area that are likely to be affected by the proposed development are assessed as having less than local importance due to being common and widespread at the local and national level.

7.9 The Projected Future Baseline

7.9.1.1 Baseline ecological conditions could evolve in the future as a result of land use policy, environmental improvements and development pressures. There may also be some changes to the baseline over time as a result of natural variation and weather events.

7.9.1.2 Climate change is predicted to result in warmer and wetter winters, hotter and drier summers plus increased occurrence of extreme weather events. This is likely to lead to complex changes to biodiversity; though significant changes to the list of important ecological receptors identified locally are not anticipated in the short

term. In the medium – long term changes are possible but are impossible to accurately predict at this stage.

7.9.1.3 The above events and trends have the potential to alter the baseline assessment of the EcIA over time. However, in the absence of any detailed, quantifiable information it has been assumed that the baseline conditions will remain largely as they are for the purpose of the assessment (with the exception of other developments, where known, which are considered in the assessment of cumulative effects, see **Section 7.15**).

7.10 Key Parameters for Assessment

Design Considerations (Embedded Design Mitigation) and Good Practice Measures (Applied Mitigation)

7.10.1.1 Avoidance and mitigation measures that were identified and adopted as part of the evolution of the project design (embedded into the project design) and that are relevant ecology are listed in **Table 7.9**. Good practice measures (applied mitigation) are also outlined in **Table 7.9**. These represent standard good practice measures that will be employed to avoid inadvertent damage to retained habitats (and impacts on protected or notable species) during construction and operation and the assessment of impacts assumes that these measures will be implemented. These criteria have been selected from the details provided in **Chapter 4**: Project Description.

Table 7.9: Embedded design and applied mitigation measures

Parameter	Mitigation measures
General	
Project Design	Careful siting of project elements to avoid veteran trees and all woodland. Other key areas of sensitivity avoided, including badger setts, hedgerows and trees wherever possible (see **Chapter 3**: Site Selection for further details on design evolution). Cable routing to avoid the root protection area of all retained trees, hedgerows and woodland. Swift re-instatement of soils/ vegetation along the cable corridor following trenching to ensure original condition is reached within 2 years of initial impact where practical.
Construction	
Vegetation Clearance and Other Construction Works	Full details of construction mitigation measures will be provided in a Construction Environmental Management Plan (CEMP). **General measures** General good practice measures to protect important ecological features either known to be present or with the potential to be present, will be implemented during the construction phase. These will include: • Micro-siting of project elements will be used to avoid important ecological features, where possible. • Protective fencing will be installed around retained habitats of importance and retained trees located directly adjacent to working areas (in accordance with recommendations in BS 5837: 2012). • All working areas, including tracks, will be reinstated to their original condition in terms of vegetation cover, except where they are to be enhanced. • All disturbed habitats that will not be permanently lost will be reinstated as soon as possible after construction.

Parameter	Mitigation measures
	• All substances or materials within the temporary construction compounds would be carefully stored to reduce accidental pollution risk and prevent them causing any harm to otters or other mammal species which may enter the compound at night. • During construction, all excavations would either be temporarily covered at night or designed to include a ramp to allow animals a means of escape should they fall in. • A speed limit of no greater than 15 mph would be implemented onsite to reduce the risk of road traffic collisions with wildlife. • Lighting for construction will be the minimised to the lowest safe level, and designed such that there will be no significant increase in illumination levels above current levels outside of the working area.. **Ecological Clerk of Works (ECoW)** A suitably qualified ECoW or ECoW team will be employed for the duration of the construction and reinstatement periods, to oversee the safeguarding of important habitats and species and the implementation of ecological mitigation, compensation or enhancement measures, although this may not necessarily be a full-time role throughout. The role of the ECoW will include the following tasks: • Give toolbox talks to all staff onsite, so staff are aware of the ecological sensitivities on the Site and the legal implications of not complying with agreed working practices; • Agree and monitor measures designed to minimise damage to retained habitats; • Undertake pre-construction surveys and checks and advise on ecological issues where required; • Undertake pre-construction inspections of areas which require protected species mitigation (such as for breeding birds) and carry out an appropriate level of supervision during vegetation clearance; and • Oversee vegetation and habitat reinstatement on areas subject to disturbance during construction. **Pre-construction surveys** Pre-construction surveys for protected species whose distribution could have changed since the baseline surveys would be undertaken to update the baseline and inform the implementation of any mitigation necessary. Checks for the presence of protected or notable species will also be carried out by the ECoW immediately prior to vegetation clearance. In the unlikely event that protected species not recorded at the Site previously are identified during the pre-construction surveys and/or ECoW checks, appropriate mitigation measures would be identified, agreed with NE (if licences are required) and implemented.

Parameter	Mitigation measures
	For example, if pre-construction surveys found the presence of GCN then some of the measures below might need to be implemented, and the project has retained sufficient flexibility in the scheme design and programme to do so if needed: • Seasonal restrictions may be implemented to prevent significant levels of disturbance occurring during construction. If significant disturbance is anticipated then additional mitigation, method statements and an NE European Protected Species Licence (EPSL) are likely to be required in advance of any work that damages or disturbs the area, or individual GCN.
Biosecurity and Invasive Non-Native Species (INNS) Method Statement	All construction work will be undertaken in accordance with a Biosecurity and INNS Management Plan, which will be included within the CEMP.
Pollution Prevention and Emergency Incident Response	Construction practices will incorporate measures to prevent pollution: All construction work will be undertaken in accordance with the CEMP The CEMP will set out the pollution prevention measures, and emergency incident responses, which will be implemented by the Applicant and its contractors during construction.
Operation	
General	The substation will contain potential pollutants which could include cooling oils, lubricants, fuels, greases, etc. The design, maintenance and operation of the facility will follow good practice in line with the prevailing/ future guidance and legislation with regard to measures such as the storage and management of potentially polluting substances, emergency spill response procedures, clean up and control of any potentially contaminated surface water runoff and routine inspection to prevent or contain leaks of any pollutants. The operation of the Proposed Development will also follow good practice in line with the prevailing/ future guidance and legislation with regard to specific measures to avoid potential impacts to protected or notable species or sensitive habitats.
Landscape and Ecological Management Plan	All post-construction management and monitoring of habitats and mitigation measures will be undertaken in accordance with the LEMP.

7.11 Assessment of Construction Effects

7.11.1.1 The assessment of effects is based on the project description as outlined in **Chapter 4**. Unless otherwise stated, potential effects identified are considered to be adverse (negative).

7.11.1.2 The following effects have been identified that could affect the important ecological features present (note that not all effects apply to all features):

- Direct effects during construction on ecology:

  - Permanent and temporary loss of habitat, including S41 habitats;
  - Permanent and temporary habitat fragmentation and isolation;
  - Impacts upon protected or otherwise notable species or upon their resting or breeding sites, in particular GCN, breeding birds, bats, badger, dormice, brown hare, hedgehog, polecat, common lizard and/ or slow worm;
  - Spread of invasive non-native species (INNS); and
  - Accidental pollution.
- Indirect effects during construction on ecology;
  - Via light, noise and human presence, impacts upon protected or otherwise notable species or upon their resting or breeding sites.

7.11.1.3 Potential effects, assuming that the measures outlined in **Table 7.9** are implemented, are addressed for each important ecological feature, as set out in **Table 7.8**, in turn.

Aston Rowant SAC, Aston Rowant Woods SSSI, Aston Rowant NNR

7.11.1.4 For clarity: no direct effects will occur to these statutory designated sites, which are located 1.3 km from the Site. There are no hydrological links between the SAC/SSSI/ NNR and the Site. The Site is situated in the SSSI Impact Risk Zone for Aston Rowant NNR and Aston Rowant SSSI. The categories listed comprise:

- *Infrastructure: airports, helipads and other aviation proposals.*
- *Air pollution: Any industrial/agricultural development that could cause AIR POLLUTION (including: industrial processes, livestock & poultry units with a floorspace > 500m², slurry lagoons > 200m² & manure stores > 250 tonnes).*
- *Combustion: General combustion processes >20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/combustion.*
- *Waste: Landfill. Including: inert landfill, non-hazardous landfill, hazardous landfill.*
- *Compost: Any composting proposal with more than 75000 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.*

7.11.1.5 The Proposed Development, which is for a solar farm and cable corridor, does not fall under any of these categories and as such no consultation with Natural England is required.

7.11.1.6 The potential for the Site to assist in supporting the qualifying interest of the designated sites has been considered. However, the Site supports none of the same woodland or scrub habitat types for which the SAC or SSSI are designated. The SAC and SSSI have no mobile designated features (such as bats or birds).

No Significant effects are therefore predicted for any interest features for which the SSSI or SAC are designated.

7.11.1.7 Effects on European sites are also covered in a separate Habitat Regulation Assessment Screening Report at **Appendix 7.9**. It concludes there will be no significant effect on any European site's conservation objectives, and therefore no effect on the integrity of any European site, either alone or in combination with other plans or projects.

Chiltern Beechwoods SAC

7.11.1.8 For clarity: no direct effects will occur to this statutory designated site, which is located 2.1 km from the Site. There are no hydrological links between the SAC and the Site.

7.11.1.9 The potential for the Site to assist in supporting the qualifying interest of the designated sites has been considered. Although the Site supports none of the same woodland or grassland habitat types for which the SAC is designated, it does include woodland and deadwood habitat and so it is possible that it could support stag beetle, which is a designated feature of the SAC.

7.11.1.10 The conservation objectives for the SAC (Natural England, 2018) state that *"the beetle's larvae develop in decaying tree stumps and the fallen timber of broad-leaved trees in contact with the ground, especially of apple (Malus spp.), elm (Ulmus spp.), lime (Tilia spp.), beech (Fagus sylvatica) and oak (Quercus spp). Such decaying timber is an essential feature for the conservation of structure and function of the habitat for this species. Development takes around 3-4 years. Adults are active on warm evenings, but probably only the males fly regularly and come readily to lights".*

7.11.1.11 The Proposed Development results in no woodland or dead wood removal. As a result, no likely significant effects are predicted for any interest features for which the SAC are designated.

7.11.1.12 Effects on European sites are also covered in a separate Habitat Regulation Assessment Screening Report at **Appendix 7.9**. It concludes there will be no significant effect on any European site's conservation objectives, and therefore no effect on the integrity of any European site, either alone or in combination with other plans or projects.

Ancient Woodland

7.11.1.13 The closest ancient woodland to the Site is more than 200 m distant, with two other stands also present within 2 km. Given the separation distances and absence of impact pathways such as direct habitat loss, or direct hydrological

connectivity, ancient woodlands outside of the Site are unlikely to be affected by the Proposed Development and are therefore no significant effects anticipated.

Veteran ash trees

7.11.1.14 The two veteran trees identified will not be directly affected by the Proposed Development. With embedded design and applied mitigation described in **Table 7.9** in place (in particular the root protection area as defined in BSBS 5837: 2012 and further referenced within the arboricultural report at **Appendix 2.5**), no indirect impacts to the veteran trees have been identified. Therefore, no significant effects are anticipated.

Hedgerow (h2a)

7.11.1.15 The Proposed Development requires a permanent loss of 55 m of hedgerow (h2a) as a result of creation of new entrances, and the potential temporary loss or damage (i.e removal then reinstatement) to 355 m as a result of creation of visibility splays and trenching.

7.11.1.16 This is considered to be a significant impact at the local level. Following the definitions given in **Section 7.5.1.19**, it is not possible to mitigate habitat loss, it is possible only to compensate. Compensation for 355 m temporary hedgerow loss comprises translocation of hedgerow at the north-eastern boundary of the Site, and replanting it slightly south of its current location in order to accommodate visibility splays, and reinstatement of hedgerows at gaps created by trenching work. 3,377 m of new species rich native hedgerow are also proposed; most of this is considered a biodiversity enhancement but a small proportion is also considered to be compensation for the permanent loss of 55 m associated with new entrances.

7.11.1.17 Full details of the landscaping scheme, including species mixtures are provided in **Chapter 5**:Landscape and Visual Impact Assessment with the Landscape Mitigation Plan shown in **Figure 5.10**.

7.11.1.18 Effects are therefore not significant by mid-term once proposed compensation has matured and become established as this allows time for new/ re-instated hedgerows to establish.

Notable plant species: white helleborine and bee orchid

7.11.1.19 The areas where the notable plant species have been recorded will not be directly affected by the Proposed Development. With embedded design and applied mitigation described in **Table 7.9**, no indirect impacts to the areas have been identified. Therefore, no significant effects are anticipated.

Invasive non-native plant species

7.11.1.20 The primary ways the project could increase the spread of INNS is via;

- disturbance to existing INNS populations within the construction footprint;

- inadvertently importing INNS from elsewhere, primarily on vehicles, but also other equipment or personnel; and
- via seeds, planting stock or planting substrate.

7.11.1.21 Mitigation measures beyond those listed in **Table 7.9** i.e., the implementation of INNS control measures detailed in a CEMP, are not considered necessary. Provided the mitigation measures are implemented as proposed, no significant effects are predicted over any timescale.

Great crested newt

7.11.1.22 The presence/ absence of GCN has not been determined at the three ponds within 500 m of the Site (and not separated from it by impassable barriers). The Site is of low-moderate suitability for great crested newts which, combined with the HSI scores of two of the three nearby ponds suggests a low possibility of GCN being present at suitable habitats within Site.

7.11.1.23 The Proposed Development will result in the temporary loss of small areas of potentially suitable terrestrial habitats within 100 m of the three ponds. Due to the location of the Proposed Development in adjacent to the M40, which is considered a barrier to GCN dispersal, there are no habitat fragmentation/ isolation impacts predicted.

7.11.1.24 In the absence of mitigation, and if present in the adjacent ponds, the construction stage of the Proposed Development may also result in accidental killing and/ or injury to GCN.

7.11.1.25 Due to the relatively small amount of terrestrial habitat temporarily affected, this is considered highly unlikely to significantly adversely effect the local population (if present) either in terms of size or distribution. However, due to the protected status of GCN and the risk of causing an offence, additional mitigation is nevertheless proposed as follows:

- Pre-construction eDNA survey of the three ponds to determine GCN presence/ absence. If absent, no further mitigation required.
- If GCN present, a detailed assessment undertaken to determine the risk of committing an offence and:
    - A Precautionary Method of Work (PMW) prepared if the risk of offence is deemed to be unlikely. This would form part of the CEMP.
    - A Method Statement (MS) prepared and an NE European Protected Species Licence applied for and obtained, if the risk of offence is deemed to be likely.

7.11.1.26 The methods employed by the PMW or MS would be anticipated to broadly align, and to include (subject to agreement with NE, if licensed):

    - As advised by the Ecological Clerk of Works (ECoW) and where practically possible, cutting of vegetation (by strimming or flailing) to a height of 10cm will be undertaken in all areas of suitable amphibian or reptile habitat during the active period of March to October, prior to works starting. All

places of shelter shall be moved and checked for the presence of reptiles or amphibians – log piles, rock piles etc. by hand where possible, with use of machinery only where objects are too heavy or unwieldy to move by hand and only under direct supervision of the ECoW.

- In exceptional cases, if work must start between November and March in areas that were not cut prior to the end of October, the vegetation should be cut under the supervision of the ECoW, taking care to locate and not to disturb any potential refugia. If refugia are present, they would be searched by the ECoW prior to their removal. If any reptiles or amphibians are found, they would only be moved during suitable weather conditions and would not be moved when in a state of torpor.

7.11.1.27 If when working under the PMW there is the unexpected discovery of a GCN, the animal and its place of shelter would be allowed to remain undisturbed until such time as an NE licence had been obtained.

7.11.1.28 If a GCN was discovered during a licensed scenario, it would be immediately moved to the nearest suitable undisturbed habitat, toward the nearest pond.

7.11.1.29 With the additional mitigation measures in place, there are no significant effects anticipated on the local GCN population (if present).

Breeding birds

7.11.1.30 The Proposed Development will result in the temporary loss of 355 m for one season and permanent loss of 55 m of hedgerow that may be used by passerine bird species, including S41 species. This is not considered likely to significantly affect the local passerine bird population.

7.11.1.31 In addition, there is effective permanent loss of 64.72 ha of potential ground nesting habitats, as a result of installation of PV panels, preventing use of the area by ground nesting birds; 18 skylark territories may be affected.

7.11.1.32 Disturbance to important bird species could also occur during construction in the breeding season. Most passerines are not particularly susceptible to disturbance and therefore only small numbers are likely to be affected. However, disturbance could affect at least one potential nest site for the Schedule 1 species, barn owl. Disturbance could occur for a maximum of one breeding season.

7.11.1.33 With the embedded mitigation listed in **Table 7.9** (i.e. pre-construction survey and checks by the ECoW) inadvertent disturbance, destruction or damage to active nests during construction (all wild bird species) is not anticipated.

7.11.1.34 However, additional mitigation is proposed in order to further reduce the risk as follows:

7.11.1.35 Prior to the development commencing, arable farming on Site will stop. In the intervening time between cessation of farming and commencement of construction, the Site will be managed to ensure that ground vegetation does not

encourage use by ground-nesting birds. This could be through regular repeat cultivation or other means undertaken outside of the nesting season.

7.11.1.36 Nevertheless, due to the loss of nesting and feeding areas comprising arable farmland, a negative long-term impact post-completion on breeding birds, in particular skylark, has been predicted. To compensate for the loss of arable habitat within the Proposed Development, management recommendations, in relation to farmland bird species of conservation concern, are proposed for on- and off-site arable land as follows:

- Management of existing and new hedgerows to form an “A-shape” to increase invertebrate diversity; and
- Compensatory habitat off-Site for skylark (which will also benefit other farmland birds). An area of arable land will be identified and managed to provide a minimum of eighteen skylark plots (Farm Wildlife Info website, accessed 2025) annually. This will be established in advance of construction, and maintained during the breeding season, for the lifetime of the development. Full details of the location, monitoring and management of the off-site skylark compensation area will be set out within a Skylark Compensation Plan that will be submitted to SODC for approval in advance. It is anticipated that the management of these areas will be secured under a Section 106 Agreement.

7.11.1.37 With the additional mitigation and compensation measures in place, there are no significant effects anticipated on the local breeding bird population.

Bats

7.11.1.38 The Proposed Development may result in the loss of one sycamore tree *Acer pseudoplatanus* (referenced as T18 within the Arboricultural Report at **Appendix 2.5**) which was noted to be in good health, but on a precautionary basis has been assumed to include potential roost features. Removal of a single healthy tree is considered to represent a very small proportion of the local potential roost resource (mature trees and woodland are common locally) and is therefore considered highly unlikely to significantly adversely effect any of the local bat species populations known to occur locally, either in terms of size or distribution.

7.11.1.39 However, additional mitigation measures are proposed to minimise the risk of causing an offence due to the protected status of all bat species and;

- the known roost switching behaviour of tree roosting bats; and
- the dynamic nature of potential roost features (i.e. they may be quickly gained or lost at a tree as a result of weather damage or decay).

7.11.1.40 The Proposed Development will also result in temporary loss of c355 m of hedgerow which represent flightlines and foraging areas. In addition, there is the effective permanent loss of a wider area associated with the PV installation, since recent research indicates solar farms are avoided by foraging bats (Tinsley et al, 2023 and Barré et al, 2024). Additional compensation is therefore proposed in

order to offset residual effects by improving the surrounding land to provide better foraging opportunities.

7.11.1.41 The additional mitigation is as follows:

- Pre-construction ground level tree assessment and potential roost inspection (aerial inspection) in accordance with published best practice (Collins, ed, 2023) of all trees within 15 m of proposed infrastructure or working areas to determine the presence or absence of PRF.
- Follow up presence/ absence survey at trees with potential to support multiple bats ("PRF-M" trees described in current best practice (Collins, ed, 2023) which may be impacted by the Proposed Development.
- If survey confirms a roost is located in a tree that will be impacted, a detailed assessment undertaken to determine the risk of committing an offence and:
  - A Precautionary Method of Work (PMW) prepared if the risk of offence is deemed to be unlikely. This would form part of the CEMP.
  - A Method Statement (MS) prepared and an NE European Protected Species Licence applied for and obtained, if the risk of offence is deemed to be likely.
- Installation of one compensation roost feature (i.e. a bat box) for every PRF lost, installed in advance of work. The compensation feature will provide equivalent roosting resource to that lost.
- Creation of grassland and woodland habitat around the solar array, that will support abundant insect prey, to offset direct and indirect loss of foraging habitat.

7.11.1.42 If when working under the PMW there is the unexpected discovery of a bat, the animal and its place of shelter would be allowed to remain undisturbed until such time as an NE licence had been obtained.

7.11.1.43 If a bat was discovered during a licensed scenario, the licence MS would be followed (this would most likely require it to be immediately moved to the nearest compensation roost location, anticipated to be installed on a nearby, undisturbed tree in advance of work).

7.11.1.44 With the additional mitigation measures in place, there are no significant effects anticipated on the local bat population.

Badger

7.11.1.45 Badger setts have been discovered on site and are avoided by the Proposed Development (i.e. a buffer of at least 30 m from any active sett entrance has been applied and will be enforced). Mitigation measures beyond those listed in **Table 7.9** are not considered necessary. Provided the mitigation measures are implemented as proposed, no significant effects are predicted over any timescale.

Hazel dormouse

7.11.1.46 Dormice are assumed to be absent from the Site at the current time, but given the presence of local records, suitable habitat, and their mobile nature, future

presence cannot be ruled out. Mitigation measures beyond those listed in **Table 7.9** i.e. pre-construction checks by the ECoW, are not considered necessary. Provided the mitigation measures are implemented as proposed, no significant effects are predicted over any timescale.

Brown hare, hedgehog, polecat, common lizard, slow worm

7.11.1.47 Certain habitats at the Site are suitable for the above species, and as such they may be impacted by temporary or permanent loss of foraging and sheltering habitat, temporary fragmentation of foraging areas/ routes and/ or accidental killing and injury.

7.11.1.48 Additional mitigation is proposed to minimise impacts, and in the case of the reptile species, to minimise the risk of committing an offence under the protecting legislation. The additional mitigation measures accord with those for great crested newt stated above in **Section 7.11.1.26**, and will be implemented as necessary.

7.11.1.49 Provided the mitigation measures are implemented as proposed, no significant effects are predicted over any timescale.

7.12 Assessment of Operational Effects

7.12.1.1 The following effects have been identified that could affect bird or bat populations:

- Indirect loss of foraging habitat, as a result of the solar panel array adversely affecting behaviours of birds and bats.

7.12.1.2 In its 2017 review of the impacts of solar farms (Natural England, 2017), Natural England recommends that "*the potential for solar developments to attract or repel birds or bats should be considered, alongside the potential for negative interactions to occur between these taxa and solar farms*"

7.12.1.3 Research now indicates that solar farms managed with biodiversity in mind can be beneficial for bird species (Copping et al, 2025). Research in respect of bats (Tinsley et al, 2023 and Barré et al, 2024) however indicates that this species group may avoid the area.

7.12.1.4 For both birds and bats, there is relatively limited evidence and caution should be applied when extrapolating from it. Nevertheless, it appears to point to the fact that management of habitats beneath and around the solar farm infrastructure is key in maintaining and enhancing use of the area by bird and bat species.

7.12.1.5 As part of the embedded mitigation measures, a LEMP is proposed that shall include how and where habitats are to be created or enhanced, aftercare, monitoring and maintenance. This shall ensure that opportunities for biodiversity enhancement are integrated as part of the Proposed Development, such that

operational impacts are considered unlikely to be significant, based on data and evidence to date.

7.13 Residual Effects

7.13.1.1 With embedded design, applied mitigation and additional mitigation measures in place, no significant residual construction effects are predicted for any of the important ecological features identified, with the exception of skylark.

7.13.1.2 Habitat loss for skylark cannot be mitigated and remains a significant residual effect at the District level. As set out in the mitigation hierarchy, compensation is therefore required, the full details of which will be included in a Skylark Compensation Plan as set out in **Section 0**.

7.13.1.3 Whilst implementing the Skylark Compensation Plan will not remove the significant negative effect of habitat loss, it is considered possible to completely offset it.

7.14 Enhancements

7.14.1.1 The LEMP will describe a range of measures that will be employed for the benefit of biodiversity and will show how the Landscape Mitigation Plan (Figure 5.10 of the ES) will be managed. In summary, those that are considered to be enhancement, i.e. which go beyond the requirement to mitigate or compensate for impacts include:

- Retained hedgerows would be positively managed to increase the average height to 3 m and to infill any gaps with native shrubs or hedgerow trees, and any non-native invasive plant species would be removed, as appropriate. Potential native shrubs and trees for enhancement and hedgerow infilling include blackthorn, hazel, dog rose, dogwood, spindle, common holly, English oak, and field maple.
- 3377 m of new, native species rich hedgerow with trees planted;
- 0.99 ha of new native broadleaved woodland created;
- 77.98 ha of new species rich grassland created; and
- Creation of stag beetle log stumperies (Peoples Trust for Endangered Species, u.d) close to existing and new woodlands and hedgerows.

7.15 Cumulative Effects

7.15.1.1 There are three operational solar farms within 5 km, and one additional solar farm that has been consented but not constructed as follows:

- Harlesford Solar (Operational) – 3.1 km north-north-west of the solar area;
- Dodwells Solar (Consented, Awaiting Construction) – 3.2 km north of the solar area;
- Cornwell Solar Farm (Operational) – 4 km north-west of the solar area; and
- Chalgrove Solar (Operational) – 4.7 km west of the solar area.

7.15.1.2 All of the above sites are either already operational, or anticipated to be at the point that the Proposed Development would be constructed. There are therefore no cumulative impacts as a result of construction.

7.15.1.3 Potential cumulative impacts during construction are considered limited to indirect loss of foraging habitat, as a result of the solar panel arrays adversely affecting behaviours of birds and bats.

7.15.1.4 It is assumed that all of the listed developments are compliant with any planning conditions or agreements relating to ecological mitigation, compensation and enhancement. With the embedded and additional mitigation and compensation proposed for the Proposed Development, there are no additional cumulative impacts anticipated.

7.16 Further Survey Requirements and Monitoring

7.16.1.1 No further survey is considered necessary to inform this EcIA. Pre-construction update surveys are proposed as detailed in **Table 7.9.**

7.16.1.2 Post construction monitoring and management is proposed in respect of habitats and skylark, the details of which will be set out within a LEMP and Skylark Compensation Plan respectively.

7.17 Summary of Effects

7.17.1.1 **Table 7.10** below summarises the predicted significant effects of the Proposed Development on Ecology.

Table 7.10: Summary of Potential Impacts, Proposed Mitigation and Residual Effects

Ecological Feature	Predicted Effect	Significance (when embedded and applied mitigation considered)	Additional Mitigation/ Compensation	Significance of Residual Effect
During construction				
Aston Rowant SAC, SSSI, NNR	None	N/A	None	**N/A**
Chiltern Beechwoods SAC	None	N/A	None	**N/A**
Ancient Woodland	None	N/A	None	**N/A**
Veteran ash trees	Potential damage or disturbance	Not significant	None	**Not significant**
Hedgerow (h2a)	Permanent loss of 55 m of hedgerow and temporary loss of 355 m of existing hedgerow	Significant effect at Local Level	Reinstatement (including translocation) of 355 m of hedgerow Creation of 3377 m of new hedgerow at solar site	**Not significant**
Notable plant species: White helleborine and bee orchid	Potential damage or disturbance	Not significant	None	**Not significant**
Invasive plants: Rhododendron and variegated yellow archangel	Possible spread of INNS via disturbance to existing INNS populations within the construction footprint, inadvertently importing INNS from elsewhere, primarily on vehicles, but also other equipment or personnel and via seeds, planting stock or planting substrate.	Not significant	None	**Not significant**

Ecological Feature	Predicted Effect	Significance (when embedded and applied mitigation considered)	Additional Mitigation/ Compensation	Significance of Residual Effect
Great Crested Newt	The Proposed Development will result in the temporary loss of potentially suitable terrestrial habitats for GCN within 100 m of the three ponds which could support the species (presence/ absence has not been confirmed). In the absence of mitigation, and if present in the adjacent ponds, the construction stage of the Proposed Development may also result in accidental killing and/ or injury to GCN.	Significant effect at Local level.	Pre-construction eDNA survey of the three ponds to determine GCN presence/ absence. If absent, no further mitigation required. If GCN present, a detailed assessment undertaken to determine the risk of committing an offence and: • A Precautionary Method of Work (PMW) prepared if the risk of offence is deemed to be unlikely. This would form part of the CEMP. • A Method Statement (MS) prepared and an NE European Protected Species Licence applied for and obtained, if the risk of offence is deemed to be likely.	**Not significant**

Ecological Feature	Predicted Effect	Significance (when embedded and applied mitigation considered)	Additional Mitigation/ Compensation	Significance of Residual Effect
Breeding Birds	Permanent loss of arable habitat at the solar site, supporting 18 skylark territories. Temporary loss of habitats associated with the cable connection. Inadvertent destruction or damage to active nests.	Significant effect at the district level.	Prior to the development commencing, arable farming on Site will stop. In the intervening time between cessation of farming and commencement of construction, the Site will be managed to ensure that ground vegetation does not encourage use by ground-nesting birds. This could be through regular repeat cultivation or other means undertaken outside of the nesting season. Management of existing and new hedgerows to form an "A-shape" to increase invertebrate diversity Compensatory habitat off-Site for skylark (which will also benefit other farmland birds). An area of arable land will be identified and managed to provide a minimum of eighteen skylark plots annually. This will be established in advance of construction, and maintained during the breeding season, for the lifetime of the development. Full details of the location, monitoring and management of the off-site skylark compensation area will be set out within a Skylark Compensation Plan that will be submitted to SODC for approval in advance. It is anticipated that the management of these areas will be secured under a Section 106 Agreement.	**Not significant**

Ecological Feature	Predicted Effect	Significance (when embedded and applied mitigation considered)	Additional Mitigation/ Compensation	Significance of Residual Effect
Bats		County	Pre-construction ground level tree assessment and potential roost inspection (aerial inspection) in accordance with published best practice of all trees within 15 m of proposed infrastructure or working areas to determine the presence or absence of PRF. Follow up presence/ absence survey at trees with potential to support multiple bats ("PRF-M" trees described in current best practice[32]) which may be impacted by the Proposed Development. If survey confirms a roost is located in a tree that will be impacted, a detailed assessment undertaken to determine the risk of committing an offence and: • A Precautionary Method of Work (PMW) prepared if the risk of offence is deemed to be unlikely. This would form part of the CEMP. • A Method Statement (MS) prepared and an NE European Protected Species Licence applied for and obtained, if the risk of offence is deemed to be likely. Installation of one compensation roost feature (i.e. a bat box) for every PRF lost, installed in advance of work. The compensation feature will provide equivalent roosting resource to that lost. Creation of c.79 ha of grassland, woodland and hedgerow habitat around the solar array, that will support abundant insect prey, to offset direct and indirect loss of foraging habitat.	**Not significant**
Badger	Inadvertent destruction or damage to active setts.	Not significant	None	**Not significant**

Ecological Feature	Predicted Effect	Significance (when embedded and applied mitigation considered)	Additional Mitigation/ Compensation	Significance of Residual Effect
Hazel dormouse	Inadvertent disturbance to dormice, or destruction or damage to nests (if present).	Not significant	**None**	**Not significant**
Brown hare, hedgehog, polecat, common lizard, slow worm	Temporary loss of foraging and sheltering habitat, permanent loss if present at the solar site Accidental killing and injury.	Not significant	**None**	**Not significant**
During operation				
Birds	Indirect loss of foraging habitat, as a result of the solar panel array adversely affecting behaviours	Not significant	**None**	**Not significant**
Bats	Indirect loss of foraging habitat, as a result of the solar panel array adversely affecting behaviours	Not significant	**None**	**Not significant**
Cumulative				
Birds	Indirect loss of foraging habitat, as a result of the solar panel array adversely affecting behaviours	Not significant	**None**	**Not significant**
Bats	Indirect loss of foraging habitat, as a result of the solar panel array adversely affecting behaviours	Not significant	**None**	**Not significant**

7.18 Biodiversity Net Gain

7.18.1.1 The results of the Proposed Development's BNG assessment using the Statutory Metric is set out in detail **Appendix 7.8**. In summary, the on-site net change is as follows:

- There will be a 171.08% increase in habitat units;
- There will be a 124.63% increase in hedgerow units;
- There will be no change in watercourse units.

7.18.1.2 Since unit types are not tradeable, the significant increase in habitat and hedgerow units does not offset the absence of 10% gain in watercourse units. In order to address the shortfall in watercourse units, it would be necessary to either create new watercourses on site, and/ or to offset off-site.

7.19 References

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