Lime Down
Solar Park

Environmental Statement

Volume 1, Chapter 9: Ecology and Biodiversity

September 2025

Revision 1

Planning Inspectorate Reference: EN010168

Document Reference: APP/6.1

APFP Regulation 5(2)(a)

List of Contents

List of Tables

9 Ecology and Biodiversity

9.1 Introduction

9.1.1 This chapter of the Environmental Statement (ES) presents the findings of the Environmental Impact Assessment (EIA), focusing on an assessment of the likely significant effects on ecology and biodiversity as a result of the Scheme. For more details about the Scheme, refer to **ES Volume 1, Chapter 3 The Scheme [EN010168/APP/6.1]**.

9.1.2 This chapter identifies and proposes measures to address the potential impacts and likely significant effects on ecology and biodiversity, during the construction, operation and maintenance, and decommissioning phases of the Scheme.

9.1.3 This chapter will describe the ecological baseline derived from extensive site and desk-based surveys and assess the possible level of effects likely to arise, together with any avoidance, mitigation and compensation measures likely or capable of being adopted to reduce these, in accordance with nature conservation, legislation and planning policy. Proposals for ecological enhancement to contribute to local conservation priorities and achievement of Biodiversity Net Gain (BNG) in line with the Environment Act 2021 (to the extent applicable to the Scheme) and national and local policies are also presented.

9.1.4 Habitat and species information, referenced in the assessment and presented in this chapter, is based on site surveys conducted in 2023, 2024 and 2025, published data, third party ecological records and web-based information obtained at the time of writing. Any assumptions and limitations relevant to each survey, and how any limitations have been overcome, are included within the relevant technical reports (provided in the appendices to this chapter) and in the assessment set out below.

9.1.5 This chapter is supported by the following figures in **ES Volume 2 [EN010168/APP/6.2]**:

- **Figure 9-1-1: International Statutorily Designated Sites within Search Area**;
- **Figure 9-1-2: National Statutorily Designated Sites within 5km of the Solar PV Sites**;
- **Figure 9-1-3: Non-Statutorily Designated Sites within 2km of the Solar PV Sites**;
- **Figure 9-1-4: Wiltshire Impact Zones for Bats**;
- **Figure 9-1-5 to 9-1-9: Baseline Habitats Map - Lime Down A to Lime Down E**;
- **Figure 9-1-10: Baseline Habitats Map – Cable Route Corridor**;

- **Figure 9-1-11: Priority Habitats and Ancient Woodland within 2km of the Solar PV Sites**; and
- **Figure 9-1-12: Priority Habitats and Ancient Woodland within the Cable Route Corridor**.

9.1.6 This chapter is supported by the following appendices in **ES Volume 3 [EN010168/APP/6.3]**:

- **Appendix 9-1: Ecological Baseline Report**;
- **Appendix 9-2: Badger Survey Report (CONFIDENTIAL)**;
- **Appendix 9-3: Bat Survey Report**;
- **Appendix 9-4: Breeding Bird Survey Report**;
- **Appendix 9-5: Great Crested Newt Survey Report**;
- **Appendix 9-6: Otter and Water Vole Survey Report**;
- **Appendix 9-7: Wintering Bird Survey Report**; and
- **Appendix 9-8: Schedule of Protective Ecological Buffers (CONFIDENTIAL)**.

9.2 Consultation

9.2.1 A request for an EIA Scoping Opinion was sought from the Secretary of State through the Planning Inspectorate in July 2024. The issues raised in the Scoping Opinion are summarised and responded to within **ES Volume 3, Appendix 1-3: Scoping Opinion Responses [EN010168/APP/6.3],** which demonstrates how the matters raised in the Scoping Opinion are addressed in this ES. Matters where the scope of the assessment has been raised by the Planning Inspectorate are summarised in **Table 9-1** below.

Table 9-1: Planning Inspectorate Scoping Opinion Responses

ID	Summary of Matter	Response
3.3.1	The Scoping Report states that District Level Licensing (DLL) for great crested newts (GCN) is currently being explored as a potential compensation option for the Proposed Development. The Inspectorate understands that the DLL approach includes strategic area assessment and the identification of risk zones and strategic opportunity area maps. The ES should include information to demonstrate whether the Proposed Development is located	Further information on the Scheme's location in relation to NE GCN risk zones has been provided as part of the ES, most explicitly in **ES Volume 2, Figures 9.5.4 to 9.5.6: Natural England GCN Risk Zones [EN010168/APP/6.2].** Registration of the Cable Route Corridor under DLL will be sought for the Scheme, with Natural England confirming there is a very good supply of compensation ponds in Swindon and Wiltshire for

ID	Summary of Matter	Response
	within a risk zone for GCN. If the Applicant enters into the DLL scheme, Natural England (NE) will undertake an impact assessment and inform the Applicant whether their scheme is within one of the amber risk zones and therefore whether the Proposed Development is likely to have a significant effect on GCN. The outcome of this assessment will be documented on an Impact Assessment and Conservation Payment Certificate (IACPC). The IACPC can be used to provide additional detail to inform the findings in the ES, including information on the Proposed Development's impact on GCN and the appropriate compensation required.	DLL (Table 9-2: Summary of Engagement Undertaken refers).
3.3.2	The Scoping Report does not propose to conduct any species-specific surveys of brown hare, hedgehog, polecat, dormice, harvest mice, reptiles and invertebrates for all site areas. The Scoping Report states that their presence on-site within all suitable habitat has been assumed and will be considered within the ES assessment. Without certainty on the extent and presence of these species, and without confidence that mitigation through avoidance would be adequate, the Inspectorate does not agree that a detailed assessment of impacts on brown hare, hedgehog, polecat, dormice, harvest mice, reptiles and terrestrial or aquatic invertebrates can be scoped out of further assessment. The Applicant's attention is also drawn to the Environment Agency's (EA's) response to consultation (Appendix 2 of this Opinion) with regard to the potential presence of white-clawed crayfish on site. The Applicant should seek to agree the scope of the ecological impact assessment with relevant consultation bodies including the EA.	Impacts to these species/species groups remain scoped into the assessment, with an assessment of impacts and mitigation considerations provided in sections 9.10 and 9.12. Specific surveys have not been undertaken on the basis that an adequate assessment can be made taking into consideration the extent and location of suitable habitat and the likely impacts of the proposals. The survey scope for the Solar PV Sites has been agreed with relevant stakeholder as set out in **Table** .
3.3.3	The Scoping Report proposes to scope out impacts of electro-magnetic fields (EMFs) resulting from cables within the sites and	Impacts of EMFs on wildlife from On-Site cables and Interconnecting Cables remain scoped out.

ID	Summary of Matter	Response
	interconnecting cables on ecological receptors on the basis that the voltage of the cables within the site and the interconnecting cables would be between 33 to 132kV and that the risk of EMFs resulting in significant impacts is considered highly unlikely due to the burial, sheathing and relatively low voltage of cabling within and between Lime Down A to E. The Inspectorate agrees that given the nature of the proposals and the reasoning provided in the Scoping Report significant environmental effects are unlikely and this matter can be scoped out of further assessment	
3.3.4	The Scoping Report proposes to scope out impacts of EMFs on terrestrial species resulting from the Primary Cable Route on the basis that there is no evidence to suggest potential significant effects to terrestrial wildlife and that burial of the 400kV cable will provide a degree of attenuation. The Inspectorate notes that EMF impacts to fish will be considered where the Primary Cable Route crosses watercourses. The Inspectorate agrees that given the nature of the proposals and the reasoning provided in the Scoping Report significant environmental effects are unlikely and impacts of EMFs on terrestrial species resulting from the Primary Cable Route can be scoped out of the ES	Impacts of EMFs on terrestrial wildlife from the grid connection cables remain scoped out.
3.3.5	Impacts to the Severn Estuary Special Protection Area (SPA) and Ramsar are proposed to be scoped out of the ES on the basis that the Proposed Development site is located approximately 24 km from the Severn Estuary. The Scoping Report states that the site encompasses habitat different to those cited within the relevant designations which is not considered to represent functionally linked land to the Severn Estuary SPA and Ramsar. It is further stated that there is not considered to be a hydrological linkage.	The Severn Estuary SPA and Ramsar have been scoped into the assessment, with impacts on these sites assessed in Section 9.10.

ID	Summary of Matter	Response
	The Applicant's attention is drawn to the EA's response to consultation (Appendix 2 of this Opinion) which details that the Avon Bristol Rural Operational Catchment is hydrologically connected to the Severn Estuary and that there is potential for pollutants from the Proposed Development to enter the Severn Estuary. Their response further states that the site is functionally linked to the Severn Estuary Ramsar and the Severn Estuary Site of Special Scientific Interest (SSSI) due to the presence of European eel in watercourses within the Proposed Development site. In the absence of evidence demonstrating clear agreement with relevant statutory bodies, the Inspectorate is not in a position to agree to scope these matters out of assessment. Accordingly, the ES should include an assessment of these matters or the information demonstrating agreement with the relevant consultation bodies and the absence of likely significant effect.	
3.3.6	Impacts to the Salisbury Plain SPA are proposed to be scoped out of the ES on the basis that the Proposed Development site is located approximately 19 km from the Salisbury Plain SPA and the site consists of enclosed and largely arable farmland, which is disconsonant with the open chalk grassland which characterises the Salisbury Plain. It is further stated that land within the site is not considered to represent functionally linked land for the qualifying bird species of the Salisbury Plain SPA. On the basis of the separation distance and given that the site consists of enclosed and largely arable farmland, the Inspectorate agrees that significant effects on the Salisbury Plain SPA are unlikely and can be scoped out of further assessment.	Salisbury Plain SPA remains scoped out.

ID	Summary of Matter	Response
3.3.7	Impacts to the Mells Valley Special Area of Conservation (SAC) are proposed to be scoped out of the ES on the basis that due to the separation distance from the Proposed Development (approximately 28.44 km at the closest point and 42 km from the array areas) and given that there are no known breeding or hibernating roosts for the greater horseshoe bats supported by the SAC, the Proposed Development site would not be expected to represent functionally linked land for the horseshoe bats supported by the SAC, with summer home ranges of this species typically being less than 10 km from roost sites. The Inspectorate agrees that given the separation distance, significant effects on the Mells Valley SAC are unlikely and can be scoped out of further assessment	Mells Valley SAC remains scoped out.
3.3.8	The Scoping Report proposes to scope out impacts to National Statutorily Designated sites within 5 km of the site which have been designated solely for the geological interest. Paragraphs 8.3.21 and 8.3.22 identify that two SSSIs are located within 5 km of the Proposed Development site (Stanton St Quintin Quarry and Motorway Cutting SSSI and Corsham Railway Cutting SSSI). These sites are located approximately 1.73 km and 2.98 km from the Proposed Development site respectively. The Inspectorate agrees that due to the distance from the Proposed Development and on the basis of their reasons for designation, significant effects on these SSSI's are unlikely and can be scoped out of further assessment.	Stanton St Quintin Quarry SSSI and Corsham Railway Cutting SSSI, both of which are within 5 km of the Solar PV Sites and are designated solely for geological interest, remain scoped out.
3.3.9	Tables 8.1 and 8.2 provide the field survey scope and schedule for Lime Down A to E and Land at the Existing National Grid Melksham Substation respectively. Paragraph 8.3.14 provides the indicative survey scope	Beavers have been scoped into the assessment, with impacts on this species assessed in 9.10. The survey scope and methodology for bats at the Solar PV Sites (Lime Down A to E) has been agreed with Natural

ID	Summary of Matter	Response
	for the Cable Route Corridor. Paragraph 8.3.12 states that land at the Existing National Grid Melksham Substation lies within 500 m of the consultation zone associated with Bath and Bradford on Avon Bats (BaBOA) SAC, and a detailed bat survey scope has been proposed to reflect this. The Inspectorate notes that a detailed bat survey has not been proposed for Lime Down A to E. Responses to consultation from the EA and Wiltshire Council (Appendix 2 of this Opinion) highlight the presence of beavers within the Bristol Avon catchment and the potential for presence in proximity to the site boundary. The ES should assess significant effects on ecological receptors where they are likely to occur. The ES should ensure the ecological baseline is robust and justify the extent and scale of surveys undertaken. As noted above, the Inspectorate considers that the Applicant should seek agreement from the relevant consultation bodies on the scale and extent of any surveys undertaken, evidence of which should be provided within the Development Consent Order (DCO) application	England and is considered adequate to inform the assessment of impacts. **Table 9-2** sets out where survey scope has been agreed with relevant stakeholders.
3.3.10	Table 8.6 identifies ecological receptors likely to be sensitive to construction, operational and decommissioning impacts. The Inspectorate notes the EA's response to consultation (Appendix 2 of this Opinion) and considers that fish should be included as a potential receptor for each source of impact. Where the cable routes cross watercourses full details which specify any mitigation required to avoid adverse impacts on fish should be detailed within the Construction Environmental Management Plan (CEMP) and ES	Fish have been included as a potential receptor for each source of impact, with an assessment of impacts on fish, including identification of mitigation measures, provided in section 9.10 and 9.12. The **Outline Ecological Protection and Mitigation Strategy (Outline EPMS) [EN010168/APP/7.19]** prescribes specific mitigation measures to avoid adverse impacts on fish.
3.3.11	The Inspectorate draws the Applicant's attention to the consultation response from the EA (Appendix 2 of this Opinion).	Buffer zones are described in Section 9.9. **Table 9-2** sets out where buffer

ID	Summary of Matter	Response
	Appropriate buffer zone distances should be defined in the ES, with reference to how this is secured through the DCO. The Applicant should make effort to agree these details with the relevant consultation bodies.	zones have been agreed with relevant stakeholders.
3.3.12	The Inspectorate draws the Applicant's attention to the consultation responses from the EA (Appendix 2 of this Opinion) regarding records of Invasive Non-Native Species (INNS) within the site. The ES should detail and secure mitigation/biosecurity measures during all phases of the Proposed Development to avoid/control the spread and introduction of INNS	Baseline information on INNS are described in section 9.7 and in **ES Volume 3, Appendix 9.1: Ecological Baseline Report [EN010168/APP/6.3].** Measures to ensure the prevention of spread of INNS by the Scheme are described in Section 9.10 and are included in the **Outline Ecological Protection and Mitigation Strategy (Outline EPMS) [EN010168/APP/7.19].**
3.1.13	Public bodies have a responsibility to avoid releasing environmental information that could bring about harm to sensitive or vulnerable ecological features. Specific survey and assessment data relating to the presence and locations of species such as badgers, rare birds and plants that could be subject to disturbance, damage, persecution, or commercial exploitation resulting from publication of the information, should be provided in the ES as a confidential annex. All other assessment information should be included in an ES chapter, as normal, with a placeholder explaining that a confidential annex has been submitted to the Inspectorate and may be made available subject to request	Survey and assessment data relating to sensitive species at risk of persecution or exploitation, namely badgers, are provided are provided within a confidential annex in **ES Volume 3, Appendix 9-2: Badger Survey Report [EN010168/APP/6.3].**

9.2.2 Engagement has been undertaken with stakeholders comprising the Environment Agency, Natural England, Wiltshire Council and Butterfly Conservation. The matters raised are summarised in **Table 9-2** below.

Table 9-2: Summary of Engagement Undertaken

Consultee and Date	Issue/Topic	Response
Natural England 12 April 2024	Natural England confirmed via email that there is a very good supply of compensation ponds in Swindon and	The Applicant notes this comment. Registration of the Cable Route Corridor

Consultee and Date	Issue/Topic	Response
	Wiltshire for use under GCN DLL and additional pond delivery can be achieved if required.	under DLL will be sought for the Scheme
Natural England 12 July 2024	Natural England confirmed via email that the proposed survey methodology for bat activity surveys at the Solar PV Sites was appropriate in NE's opinion	The survey scope for bats summarised in **Table** , with further details provided in **ES Volume 3, Appendix 9.3: Bat Survey Report [EN010168/APP/6.3].**
Butterfly Conservation 22 August 2024	Meeting to discuss constraints and opportunities at the Solar PV Sites relating to barberry carpet moth. The Scheme offers an opportunity to provide enhancements for this species due to records in close proximity to the Solar PV Sites. Butterfly Conservation offered advice on planting and management of barberry shrubs, to both attract barberry carpet moth and minimise impacts of management on this species.	Opportunities to include planting and management of barberry shrubs within the Scheme design have been considered and are set out within the **Outline Landscape and Ecological Management Plan (Outline LEMP) [EN010168/APP/7.18]**.
Butterfly Conservation 03 September 2024	Meeting to discuss constraints and opportunities at the Solar PV Sites relating to marsh fritillary butterfly. Butterfly Conservation highlight habitat requirements for this species, including how cattle grazing is key to provide conditions for this species to thrive.	The nature of the Scheme is not conducive to introduce new areas of cattle-grazing so potential for on-site enhancement is limited.
Wiltshire Council Ecology Team 17 September 2024	Wiltshire Council advised a more detailed/thorough assessment is undertaken for bats in areas of heavier development (for example Battery Energy Storage Systems (BESS Area)) compared to Solar PV Panels, particularly with respect to noise, lighting and vibration.	An assessment of impacts on bats from lighting and noise (including from BESS elements) is included within Section 9.10
Wiltshire Council Ecology Team 17 September 2024	The Cable Route Search Corridor (CRSC) passes through sensitive Impact Zones (for BaBOA Bats SAC). Wiltshire Council Ecology	The refined Cable Route Corridor in relation to up-to-date Impact Zones for Bats are shown in **ES**

Consultee and Date	Issue/Topic	Response
	Team highlighted a recently added consultation zone south of Chippenham due the discovery of additional maternity roosts belonging to Bechstein's bat. Careful consideration of works within this area was advised, with particular attention given to isolated trees given the Bechstein's roost sites which were found in atypical sites for this species.	**Volume 2, Figure 9-1-4: Wiltshire Impact Zones for Bats [EN010168/APP/6.2]**. An assessment of impacts on associated bat species, included Bechstein's Bat, is provided in section 9.10 of this chapter, as well as within the HRA Report.
Wiltshire Council Ecology Team 17 September 2024	A project of this scale is likely to impact skylarks. Wiltshire Council Ecology Team advise that large areas are set aside for skylark mitigation.	The requirements for skylark mitigation has been considered from an early stage during the design process. Skylark mitigation proposals are described in section 9.10, which include the retention of whole fields managed for the benefit of this species. Further details are contained within the **Outline LEMP [EN010168/APP/7.18]** which provides the mechanism for securing proposed mitigation.
Wiltshire Council Ecology Team 17 September 2024	Wiltshire Council Ecology Team are generally content with survey scope, and generally content with taking an approach of assuming presence of some species in all suitable habitat (e.g. dormice, reptiles and invertebrates), although habitat removal within Cable Route Corridor will need to be monitored carefully.	The full survey scope, including a refined scope relating to the Cable Route Corridor, are set out in section 9.6.
Wiltshire Council Ecology Team 17 September 2024	Wiltshire Council Ecology Team advised careful and early consideration of the siting of compounds required for cable route works, as these are often the largest sources of impact on ecology associated with cable route works.	Siting of Temporary Construction Compounds associated with the Cable Route Corridor have considered with respect to impacts on ecology and biodiversity. This includes locating these outside of Wiltshire Impact Zone for Bat Species, as set out in section 9.9.

Consultee and Date	Issue/Topic	Response
Environment Agency 3 October 2024	Advised on the higher risk of EMFs impacting fish and their eggs/spawning grounds in addition to impacts on fish movement.	The potential impacts of EMFs on sensitive fish species are discussed in Section 9.10**.**
Environment Agency 3 October 2024	Environment Agency advised culverts and requirements for coffer dams are avoided as far as possible	Requirements for culverts and coffer dams have been avoided as far as possible in the Scheme design by utilising existing crossings or adopting alternative crossing techniques. Requirements for culverts and coffer dams are generally at minor watercourses of lower value to ecology, as assessed in section 9.10.
Wiltshire Council Ecology Team 17 September 2024 Environment Agency 7 October 2024	Beavers should be included within the scope of the EIA.	Beavers have been scoped into the assessment, with impacts on this species assessed in 9.10
Wiltshire Council Ecology Team 17 September 2024 Environment Agency 7 October 2024	Agreed that evidence of beavers are very likely to be recorded during surveys conducted to date for other riparian mammals (i.e. water voles and otters), and specific beaver surveys are not required.	Riparian mammal survey methods are described in Table 9 3. Further details are provided in **ES Volume 3**, **Appendix 9.6 Otter and Water vole Survey Report [EN010168/APP/6.3].**
Environment Agency 7 October 2024	Agreed that proposed minimum buffers from watercourses (10 m from Main Rivers and 8 m from ordinary watercourse) are likely to be adequately protective.	The Applicant notes this comment, and a description of buffer zones are provided in section 9.9.
Natural England 16 December 2024	Advised that in the context of Habitat Regulations Assessment (HRA) considerations and relevant case law, when deciding whether mitigation measures are embedded or additional at Screening stage, the reasoning needs to be clearly demonstrated. Where there is uncertainty, carry through measures to Appropriate Assessment stage.	The **Habitat Regulations Assessment Report (HRA Report) [EN010168/APP/7.10]** details the approach to Screening including consideration of mitigation measures.
Natural England 27 February 2025	Natural England advised that the survey scope proposed for the Solar PV Sites was appropriate, provided	The survey effort for all land at the Solar PV Sites

Consultee and Date	Issue/Topic	Response
	that the same survey effort was achieved for all Solar PV Sites at the point of submission.	has been equalised, as detailed in **Table 9-3.**
Natural England 27 February 2025	Natural England advised that generally the Solar PV Sites do not appear to comprise functionally-linked land (FLL) for the BaBOA Bats SAC. However it was noted the surveys were ongoing at Lime Down C at the time, which is the nearest of the Solar PV Sites to the SAC, and a more detailed breakdown of lesser horseshoe activity would help draw firmer conclusions.	A more detailed breakdown of lesser horseshoe bat activity at Lime Down C is presented within **ES Volume 3, Appendix 9-3: Bat Survey Report [EN010168/APP/6.3].**
Natural England 27 February 2025	For HRA matters NE agreed that ruling out likely significant effects on Severn Estuary SAC and SPA is appropriate. Survey data demonstrates no linkage for bird species associated with the designated site, and aquatic connectivity is over a significant distance. Implementation of pollution prevention measures within a CEMP is not considered specific mitigation for the SAC/SPA in a HRA context.	The **Habitat Regulations Assessment Report (HRA Report) [EN010168/APP/7.10]** details the approach to Screening including consideration of specific/embedded mitigation measures.
Natural England 27 February 2025	In terms of the Severn Estuary Ramsar site, there is potential for impacts to eels within the Avon catchment. Implementation of pollution prevention measures via CEMP and use of trenchless technology at suitable water crossings along the Cable Route Corridor can be expected to will avoid certain impacts. However, impact of EMFs should be considered. Mitigation measures, which may include increased depth of cables beneath water courses, should be considered additional mitigation and carried through into HRA Appropriate Assessment stage.	The **Habitat Regulations Assessment Report (HRA Report) [EN010168/APP/7.10]** details the approach to Screening including consideration of specific/embedded mitigation measures
Natural England 27 February 2025	Provision of 15 m buffer from Harries Ground, Rodbourne SSSI is considered suitable to avoid significant negative effects. Potential for benefits to the SSSI through improvements to surrounding habitats, which could be seeded using hay cut from the SSSI. It should be confirmed that devil's-bit-	No devil's-bit scabious has been recorded within species lists and botanical quadrats during surveys undertaken at the Solar PV Sites. More details of these are provided in **ES Volume 3, Appendix 9-1: Ecological Baseline**

Consultee and Date	Issue/Topic	Response
	scabious is absent from within the Solar PV Sites before concluding impacts on marsh fritillary (a reason for designation for the SSSI).	**Report [EN010168/APP/6.3]. and BNG Assessment Report [EN010168/APP/7.8] refers)**
Natural England 27 February 2025	Agreed that with the exception of the following sites, all other statutorily designated sites can be considered outside the Zone of Influence (ZoI) of the Scheme: • Bath and Bradford-on-Avon SAC • Severn Estuary SAC • Severn Estuary SPA • Severn Estuary Ramsar • Harries Ground, Rodborne SSSI	The Applicant notes this comment.
Wiltshire Council Ecology Team 04 March 2025	A number of comments in the Technical Response related to references of grazing as a potential management tool for the operation phase of the Solar PV Sites within the PEIR when no such commitment could be made.	For the PEIR assessment an assumption of worst-case scenario for management of the solar array through mechanical cutting. Grazing was mentioned in reference to ecology to demonstrate that proposed benefits will be feasible and achievable via either cutting or grazing. The assessment presented in the ES chapter assumes operational management of grassland within the Solar PV Sites will be undertaken by cutting only.
Natural England 27 February 2025 Wiltshire Council Ecology Team 04 March 2025	Natural England noted that although potential bat roost features are proposed to be retained and buffered within the Solar PV Sites (and therefore no detailed surveys for roosting bats undertaken), there may be potential for loss of access to the roost from PV panel installation. Wiltshire Council Ecology Team highlighted potential for impacts on roosting bats within the Solar PV Site, and suitable mitigation measures such as maintaining 15m	Potential impacts on roosting bats are assessed within section 9.10 of this chapter.

Consultee and Date	Issue/Topic	Response
	buffers from buildings with bat roost potential.	
Wiltshire Council Ecology Team 04 March 2025	Request for more information in terms of loss of grazed pasture within the Scheme to help determine impacts and appropriate mitigation.	Anticipated loss of grazed pasture in the context of potential impacts on bats is discussed in section 9.10 of this chapter
Wiltshire Council Ecology Team 04 March 2025	The ES should provide detailed assessment of lighting impacts during construction, with appropriate mitigation stipulations, as well as considerations of noise impacts from BESS.	Impacts of lighting and noise on protected or notable species, including any required mitigation measures, are assessed in section 9.10 of this chapter.
Wiltshire Council Ecology Team 04 March 2025	Requested further rationale for splitting six visits across two survey seasons to be provided at ES. Justification for not completing a full suite of breeding bird surveys in 2024 to be provided, based on provision of sufficient data for understanding the assemblage of birds present.	Limitations associated with splitting bird surveys over two seasons are acknowledged and justified in **ES Volume 3, Appendix 9-4: Breeding Bird Survey Report [EN010168/APP/6.3].**
Wiltshire Council Ecology Team 02 May 2025	Wiltshire Council Ecology Team confirmed via email that a former 'Core Roost' (near Grittleton), for lesser horseshoe bats associated with the BaBOA Bats SAC had been declassified in September 2020 due to it no longer having been found to meet the Core Roost criteria.	Assessment of impacts on the BaBOA Bats SAC in section 9.10 of this chapter, and **HRA Report [EN010168/APP/7.10]** has considered this information.
Environment Agency 25 May 2025	Further detailed surveys for aquatic/ riparian species within the Cable Route Corridor are not proposed, on the basis that they are assumed to be present on a precautionary basis and limitations associated with interpreting survey data from the Cable Route Corridor. Pre-construction inspections of all watercourses to be crossed by the cable installation works will be undertaken and any required avoidance/mitigation adopted. It was noted this would be adopted regardless of outcome of pre-submission presence/absence surveys due to limitations highlighted. Environment Agency confirmed this was not best practice but likely to be acceptable, although	Scope and methodologies for pre-construction surveys of all watercourses within the Cable Route Corridor are set out within the **Outline EPMS [EN010168/APP/7.19]** .

Consultee and Date	Issue/Topic	Response
	may result in construction delays and requirements for mitigation licences.	
Environment Agency 25 May 2025	EA advised on Horizontal Directional Drilling (HDD) mitigation considerations, such as avoidance of sensitive times of year for fish species likely to be present. No depth specification required, however it was agreed that 5m depth of cable below watercourses where HDD is utilised would sufficiently mitigate EMF impacts (maintaining magnetic fields 50 micro tesla from baseline levels)	Considerations for HDD mitigation measures set out within the **Outline EPMS [EN010168/APP/7.19]** and **Outline CEMP [EN010168/APP/7.12]**.
Environment Agency 29 May 2025	Environment Agency requested that the ES submission should include habitat details, photographs and proposed crossing method for each crossing point	Habitat descriptions and photos of watercourses at proposed crossing points are provided in **ES Volume 3, Appendix 11.1: Flood Risk Assessment and Drainage Strategy Covering Report [EN010168/APP/6.3].**
Environment Agency 3 October 2024 and 29 May 2025	Environment Agency confirmed the fish species associated with the Severn Estuary Ramsar site that should be considered present in suitable watercourses in the Order Limits are European eel and sea trout.	Eel and sea trout are considered in the assessment of impacts on the Severn Estuary Ramsar site in section 9.10 of this chapter and the **HRA Report [EN010168/APP/7.10].**

9.2.3 Statutory consultation was held between 29 January 2025 and 19 March 2025. A full list of consultation responses in relation to Ecology and Biodiversity are presented in the **Consultation Report [EN010168/APP/5.1]** submitted as part of the Application.

9.3 Legislation, Planning Policy and Guidance

9.3.1 A summary of applicable legislation, planning policy and other guidance documents relating to Ecology and Biodiversity pertinent to the Scheme is provided below.

9.3.2 Full details of the legislation, policy, and guidance of relevance to the assessment of Ecology and Biodiversity is provided in full in **Chapter 5: Energy Need Legislative Context and Energy Policy [EN010168/APP/6.1]**.

Legislation

9.3.3 Applicable legislation to inform the Ecology and Biodiversity assessment includes:

- The Ramsar Convention (Convention on Wetlands) 1971;
- The Conservation of Habitats and Species Regulations 2017 (as amended) ('The Habitats Regulations'). These regulations implement Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats and Species Directive) and certain elements of Directive 2009/147/EC on the conservation of wild birds (the codified version of Council Directive 79/409/EEC as amended) (Birds Directive);
- The Environment Act 2021;
- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017;
- The Natural Environment and Rural Communities (NERC) Act 2006;
- The Countryside Rights of Way Act 2000;
- The Hedgerows Regulations 1997;
- The Protection of Badgers Act 1992;
- The Wildlife and Countryside Act (WCA) 1981 (as amended);
- The Salmon and Freshwater Fisheries Act 1975;
- The Eels (England and Wales) Regulations 2009;
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017;
- Invasive Alien Species (Enforcement and Permitting) Order 2019; and
- Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024.

National Planning Policy

9.3.4 The National Policy Statements (NPSs) that are relevant to the Scheme are:

- Overarching National Policy Statement for Energy (EN-1) (November 2023) (Ref 9-1);
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (November 2023) (Ref 9-2); and
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (November 2023) (Ref 9-3).

9.3.5 The NPSs listed above came into effect on 17 January 2024. These NPSs set out the Government's energy policy for the delivery of nationally significant energy infrastructure, the need for new energy infrastructure, and guidance for the determination of an application for a DCO.

9.3.6 The relevant NPS requirements, together of an indication of where in the ES the information is provided to address these requirements, are provided in **ES Volume 3, Appendix 5-1 NPS Requirements [EN010168/APP/6.3].**

9.3.7 The National Planning Policy Framework (NPPF) (December 2024) (Ref 9-4) sets out the Government's planning policies for England and how these are expected to be applied. With relevance to Ecology and Biodiversity, Section 15 of the NPPF; Paragraphs 180-194, identifies ways in which the planning system should contribute to and enhance the natural and local environment.

9.3.8 A Green Future: Our 25 Year Plan to Improve the Environment (2018) (Ref 9-5) sets out the government's plan to tackle environmental issues and effect beneficial change in the next 25 years.

9.3.9 Natural Environment White Paper – The Natural Choice: Securing the value of nature (2011) (Ref 9-6) sets out a series of government commitments to protect and improve the natural environment and develop a green economy.

9.3.10 Biodiversity 2020: A strategy for England's wildlife and ecosystem services (Ref 9-7) builds on the Natural Environment White Paper and provides a comprehensive picture of how the government is implementing the country's international and EU commitments. It sets out the strategic direction for biodiversity policy for the next decade on land (including rivers and lakes) and at sea.

9.3.11 Government Circular: ODPM Circular 06/2005; Defra Circular 01/2005 (2005) Biodiversity and Geological conservation – Statutory obligations and their impact within the planning system. (Ref 9-8) provides administrative guidance on the application of the law relating to planning and nature conservation. It complements the NPPF and the Planning Practice Guidance.

Local Planning Policy

9.3.12 Local planning policies that are relevant to the Scheme and Ecology and Biodiversity are:

- Wiltshire Core Strategy (Ref 9-9) - Core Policy 42. This policy states that proposals for standalone renewable energy schemes need to demonstrate how impacts on biodiversity have been assessed;
- Wiltshire Core Strategy - Core Policy 50. This policy states that development proposals must demonstrate how features of nature conservation value will be protected as far as possible, or otherwise impacts mitigated or compensated to ensure no net loss of the local biodiversity resource. The

policy also states how developments should seek opportunities to enhance biodiversity and how developments should avoid impacts on local sites designated for nature conservation;

- Wiltshire Core Strategy – Core Policy 52. This policy states that development shall make provision for the retention and enhancement of Wiltshire's green infrastructure network, including providing opportunities to improve connective links between natural landscapes;
- Wiltshire Draft Local Plan (Ref 9-10) – Policy 86. This policy states that proposals for standalone renewable energy schemes need to demonstrate how impacts on biodiversity have been assessed;
- Wiltshire Draft Local Plan – Policy 88. This policy states that development proposals need to demonstrate how the mitigation hierarchy has been applied to protected features of nature conservation value, how impacts on local sites and priority habitats should be avoided, and how biodiversity enhancements should be incorporated into proposals;
- Wiltshire Draft Local Plan - Policy 89. This policy states how development proposals must achieve a minimum of 20% Biodiversity Net Gain, as measured by the latest Biodiversity Metric;
- Wiltshire Draft Local Plan - Policy 90. This policy states how major development proposals should retain and enhance woodlands, hedgerows and trees and incorporate them into development design; and
- Wiltshire Draft Local Plan – Policy 93. This policy states that development shall make provision for the retention and enhancement of Wiltshire's green and blue infrastructure network, including providing opportunities to improve connective links between natural landscapes.

Other Guidance

9.3.13 Other guidance documents relevant to the assessment of the impacts of the Scheme on Ecology and Biodiversity include:

- Natural England Standing Advice. Protected Species and Development: advice for local planning authorities (Ref 9-11);
- Bat Special Areas of Conservation (SAC) – Planning Guidance for Wiltshire (Ref 9-12);
- Trowbridge Bat Mitigation Strategy Supplementary Planning Document (Ref 9-13);
- Wiltshire Biodiversity Action Plan 2008 (Wiltshire BAP) (Ref 9-14);
- Wiltshire's Landscape Biodiversity Areas 2012 (Ref 9-15);

- Wiltshire Green Blue Infrastructure Strategy (adopted February 2022) (Ref 9-16);
- Department for Environment, Food and Rural Affairs Biodiversity Net Gain Statutory Metric (and associated documents) (Ref 9-17);
- Chartered Institute of Ecology and Environmental Management (CIEEM), Institute of Environmental Management and Assessment (IEMA), and Construction Industry Research and Information Association (CIRIA): Biodiversity Net Gain: Good Practice Principles for Development (Ref 9-18);
- British Standard BS42020:2013 Biodiversity: a Code of Practice for Planning and Development (Ref 9-19);
- British Research Establishment (BRE) (2014). Biodiversity Guidance for Solar Developments (Ref 9-20);
- Solar Energy UK (SEUK) (2022). Natural Capital Best Practice Guidance: Increasing biodiversity at all stages of a solar farm's lifecycle (Ref 9-21);
- Natural England (2017). Evidence Review of the Impact of Solar Farms on Birds, Bats and General Ecology (NEER012) 1st Edition (Ref 9-22); and
- Montag H, Parker G and Clarkson T (2016). The Effect of Solar Farms on Local Biodiversity: A Comparative Study. Clarkson and Woods and Wychwood Biodiversity (Ref 9-23).

9.4 Assessment Assumptions and Limitations

9.4.1 Baseline habitat and species information, referenced in the assessment and presented in this chapter, is based on site surveys conducted in 2023, 2024 and 2025, published data, third party ecological records and web-based information obtained between 2023 and 2025.

9.4.2 Any assumptions and limitations relevant to each survey, and how any limitations have been overcome, are included within the relevant technical reports (provided in the appendices to this chapter) and in the assessment set out below.

9.5 Study Area

9.5.1 The Study Area for the assessment of ecology and biodiversity has been developed to capture all ecological features potentially sensitive to direct and indirect impacts which the Scheme could give rise to, including all designated sites for nature conservation, sensitive and priority habitats, and protected species or species otherwise targeted for conservation action (i.e. 'notable' species).

9.5.2 In developing the Study Area, the potential ZoI of the Scheme for each feature has been considered as well as the geographic location, nature and scale of the

Scheme. A universal ZoI has not been applied for the entire Scheme due to distinctions in permanence, duration of activities, extent of land take and severity of impacts associated with the various elements of the Scheme. The Study Areas for individual or grouped sets of ecological features, for which existing data has been collated as part of comprehensive desk study, is as follows:

- International Designated Sites – namely SACs, SPAs and Ramsar sites: the Order Limits, and up to 10 km from the Solar PV Sites, extending to up to 30 km for sites with migratory birds or bats listed as a qualifying feature, or where a site has hydrological connectivity with the Scheme;
- National Designated Sites - namely Sites of SSSIs, National Nature Reserves (NNRs) and Local Nature Reserves (LNRs): the Order Limits and up to 5 km from the Solar PV Sites;
- Local Designated Sites – namely Local Wildlife Sites (LWSs) and Protected Road Verges: the Order Limits and up to 2 km from the Solar PV Sites;
- Habitats of Principal Importance (HPIs) (also known as Priority Habitats) and registered Ancient Woodland: the Order Limits and up to 2 km from the Solar PV Sites; and
- Protected and Notable Species: the Order Limits and up to 2 km from the Solar PV Sites, and up to 500m from the Cable Route Corridor (see paragraph 9.5.4).

9.5.3 The distances used in the search radii outlined above are industry standard (as has been used within other NSIP solar projects of similar scale) and are considered proportionate to the scale of protection and likely sensitivity of the features listed above, as well as typical home ranges of wildlife species supported by them. It is considered unlikely that the Scheme would give rise to impacts on designated sites, HPIs, and protected/notable species beyond these ranges and so, are considered to include the ZoI of the Scheme. The chosen, standard, search radii are considered to remain appropriate when considering the potential for cumulative impacts from other development proposals.

9.5.4 Given the temporary and limited nature of impacts associated with works taking place within the Cable Route Corridor, obtaining designated site data pertaining to a search radius around (i.e. beyond) the Cable Route Corridor was not considered proportionate. A reduced search area of 500 m beyond the Cable Route Corridor for existing data on protected/notable species from has been collated for the purpose of this assessment.

9.5.5 Works in the Highway Improvement Areas will be highly localised and generally contained within the existing highways boundary. The ZoI for the Highway Improvement Areas is limited to the Highway Improvement Areas themselves.

9.5.6 The Survey Area, in which ecological field surveys have been undertaken in order to establish the ecological baseline, is generally defined as the land within the Order Limits for all habitats and species, with the exception of badgers, otters and GCN. Where accessible, the Survey Area extended up to 30 m from the Order Limits to search for badger setts and otter holts/rest sites which could be impacted by the Scheme. Surveys for GCN presence/likely absence have been undertaken on accessible ponds within 250 m of the Solar PV Sites (refer to **ES Volume 3**, **Appendix 9-5: Great Crested Newt Survey Report [EN010168/APP/6.3]** for details).

9.5.7 It should be noted that the Survey Areas utilised for each individual ecological survey (reported in the relevant technical appendices of this chapter) were established at an early stage in the design of the Scheme. As such, they may encompass a slightly larger area than that within the Order Limits owing to subsequent Scheme design revisions. The assessment of ecological importance and the assessment of effects were carried out focussing on the survey results applicable to the Order Limits rather than the wider Survey Areas. The survey information collected in all instances is considered up to date and valid for determining effects within the Order Limits and any applicable adjacent ZoI.

9.5.8 A naming system has been applied to the fields within the Solar PV Sites, as presented in **ES Volume 2, Figure 2-2: Field Boundaries and Numbering [EN010168/APP/6.2].**

9.6 Assessment Methodology

9.6.1 This section sets out the scope and methodology for the assessment of the impacts of the Scheme on ecology and biodiversity. The methodologies described in the following section have been developed in line with the relevant planning policy and appropriate industry guidance.

Desk Study

9.6.2 A desk study and data search was undertaken as outlined below.

9.6.3 A search for Internationally and Nationally designated sites for nature conservation within the Study Area was undertaken using the Multi-Agency Geographic Information for the Countryside (MAGIC) website (Ref 9-24).

9.6.4 Information on Locally designated sites for nature conservation within the Study Area was obtained from the Wiltshire and Swindon Biological Records Centre (WSBRC).

9.6.5 A search for HPIs and registered Ancient Woodland within the Study Area was undertaken using the Natural England ‘Priority Habitats Inventory’ (Ref 9-25) and ‘Ancient Woodland Inventory’ (Ref 9-26) datasets respectively. Listed Priority Rivers, which are rivers and streams that exhibit a high degree of

naturalness, were also searched for using the 'Priority River Habitat' dataset (Ref 9-27).

9.6.6 Information pertaining to existing records on legally protected species and species of conservation concern (SoCC) within the Study Area was obtained from WSBRC.

9.6.7 The Mammals in Wiltshire report (Ref 9-28) was consulted for additional information pertaining to the distribution and conservation status of mammal species within Wiltshire.

9.6.8 A British Trust for Ornithology (BTO) Data Report utilising BTO's long-term ornithological datasets was commissioned to provide additional information on bird species recorded at a range of spatial scales from the Order Limits.

9.6.9 The MAGIC website was consulted for records of granted European Protected Species (EPS) licences issued for mitigation projects concerning EPS within 2 km of the Solar PV Sites and 500 m of the Cable Route Corridor.

9.6.10 The National Fish Populations Database (NFPD), held by the EA accessed through the EA's Ecology and Fish Data Explorer (Ref 9-29), was consulted for freshwater fish monitoring data within the relevant river catchment (Rural Bristol Avon).

9.6.11 The Natural England Great Crested Newt – Risk Zones (Swindon and Wiltshire) dataset (Ref 9-30) was searched to identify how the land within the Order Limits was distributed between Risk Zones.

9.6.12 Ordnance Survey maps (1:25,000) and aerial images of the Sites and were examined online (via Bing Maps (Ref 9-31) and Google Maps (Ref 9-32)) to allow a better understanding of the context of the Order Limits and its connections to potentially important habitats, known species records and protected sites.

Field Surveys

Solar PV Sites

9.6.13 A suite of baseline ecological surveys have been undertaken since June 2023 up until June 2025. The field survey effort and scope presented in **Table 9-3**Table below reflects what is considered to be appropriate and proportionate to inform the evaluation of baseline conditions for the Scheme based on CIEEM guidance, consultation with stakeholders, and professional judgment.

9.6.14 All land at the Solar PV Sites has been subject to the same survey scope. Some areas of land within Lime Down C and D that were added in February 2024, and additional areas of land at Lime Down C added in June 2024, were a later addition into the Scheme and thus surveys at these areas commenced later and were completed later than other areas of the Solar PV Sites. Despite

later addition of land, survey effort across the Solar PV Sites has been equalised at the point of submission of the DCO application.

Table 9-3: Field Survey Scope and Schedule – Solar PV Sites

Survey Type	Methodology	Date/Status	Details (Results and Methods)
Extended UKHabitat Classification (UKHab) Survey	Habitat survey and condition assessment of all Solar PV Sites. Follows JNCC (2010) (Ref 9-33), IEMA (1995) (Ref 9-34), UKHab (Ref 9-35) and Defra (Ref 9-36) guidance. An update habitat survey was undertaken in May/June 2025 to identify any significant changes in habitats and ecological conditions that may have occurred since the original surveys completed in June 2023	Completed June 2023 to August 2024. Update walkover completed May-June 2025	**ES Volume 3, Appendix 9-1: Ecological Baseline Report [EN010168/APP/6.3].** **BNG Assessment Report [EN010168/APP/7.8]**
Badger Walkover Survey	Walkover survey to search for badger setts and field signs in conjunction with Extended UKHab survey. Update walkover survey completed May/June 2025	Completed June 2023 to August 2024. Update walkover completed May-June 2025.	**ES Volume 3, Appendix 9-2: Badger Survey Report [EN010168/APP/6.3].**
Ground Level Tree Assessments for Roosting Bats	Daytime ground-based assessment of all trees within the Solar PV Sites for potential to support roosting bats. Follows Bat Conservation Trust (BCT) Good Practice Guidelines (3rd Edition) (Ref 9-37). Surveys followed the 3rd edition of the guidelines. These were updated to the 4th edition (Ref 9-38) after the survey programme had commenced.	Completed June 2023 to August 2024. Update completed May-June 2025.	**ES Volume 3, Appendix 9-3: Bat Survey Report [EN010168/APP/6.3].**
Building Inspections for Roosting Bats	Daytime external inspections of all buildings within the Solar PV Sites for potential to support roosting bats. Follows BCT Good Practice Guidelines (3rd Edition) (Ref 9-37). Inspections followed the 3rd edition of the guidelines. These were updated to the 4th edition (Ref 9-38) after the survey programme had commenced.	Completed June 2023 to August 2024. Update completed May-June 2025.	**ES Volume 3, Appendix 9-3: Bat Survey Report [EN010168/APP/6.3].**
Breeding Bird Surveys	Six breeding bird survey visits of all land within the Solar PV Sites. Method adapted from BTO Common Bird Census	Six visits completed at all land at the Solar PV Sites	**ES Volume 3, Appendix 9-4: Breeding Bird**

Survey Type	Methodology	Date/Status	Details (Results and Methods)
	techniques (Ref 9-39) as informed by Bird Survey and Assessment Steering Group guidelines (Ref 9-40Ref 9-41).	between June 2023 and June 2025.	**Survey Report [EN010168/APP/6.3].**
Automated Bat Activity Surveys	Monthly static bat detector surveys of all land within the Solar PV Sites utilising 33 detector locations in total. Follows BCT Good Practice Guidelines (3rd Edition) (Ref 9-37). Surveys followed the 3rd edition of the guidelines. These were updated to the 4th edition (Ref 9-38) after the survey programme had commenced.	Seven deployments completed at all static detector locations between June 2023 and June 2025.	**ES Volume 3, Appendix 9-3: Bat Survey Report [EN010168/APP/6.3].**
Great Crested Newt eDNA Surveys	Environmental DNA (eDNA) surveys of all accessible ponds within 250 m of the Solar PV Sites. Follows Freshwater Habitats Trust eDNA survey guidance (Ref 9-41).	Accessible ponds within the Solar PV Sites and within 250 m completed June 2023 – June 2025.	**ES Volume 3, Appendix 9-5: Great Crested Newt Survey Report [EN010168/APP/6.3].**
Water Vole and Otter Surveys	Late Summer/Autumn and Spring/Early Summer surveys of all suitable watercourses and ditches within the Solar PV Sites for water vole and otters. Follows Mammal Society survey guidance for water voles (Ref 9-42) and NE guidance for otters (Ref 9-43).	One late summer survey and one spring survey of all suitable watercourses completed September 2023 to April 2025.	**ES Volume 3, Appendix 9-6: Otter and Water Vole Survey Report [EN010168/APP/6.3].**

Survey Type	Methodology	Date/Status	Details (Results and Methods)
Wintering Bird Surveys	Four wintering bird survey visits of all land within the Solar PV Sites. Method adapted from BTO Common Bird Census techniques (Ref 9-39) as informed by Bird Survey and Assessment Steering Group guidelines (Ref 9-40).	Four visits completed at all land at the Solar PV Sites between. November 2023 and February 2025	**ES Volume 3, Appendix 9-7: Wintering Bird Survey Report [EN010168/APP/6.3].**
Modular River Physical (MoRPh) Survey and River Condition Assessment	Modular River Physical surveys of all watercourses within the Solar PV Sites. Follows MoRPh field survey methodology and the River Type desk-based exercise (Ref 9-44) (Ref 9-45).	October 2023 to May 2024.	**ES Volume 3, Appendix 9-1: Ecological Baseline Report [EN010168/APP/6.3].** **Biodiversity Net Gain Assessment Report [EN010168/APP/7.8]**

Cable Route Corridor

9.6.15 Construction-related impacts within the Cable Route Corridor will be limited in extent given the narrow width of cable trench required (1-7 m), and the fact that affected land along the cable route will be reinstated following a relatively short construction period. The cable installation works will be temporary and will occur progressively, with operations moving in one direction, thereby minimising the disturbance or incursion into habitats at any one location along the length of the cable route. Works will be carried out via a combination of open cut trenching and trenchless techniques such as Horizontal Directional Drilling (HDD). HDD would be employed where ecological features of an increased importance or sensitivity (e.g. main rivers) are to be crossed by the route, and where less impactful routes could not be followed.

9.6.16 The survey scope for the Cable Route Corridor was determined taking into account the habitats that will potentially be affected by the cable works, as well as the temporary nature of the cable installation works. The surveys completed within the Cable Route Corridor (where access permission was obtained) therefore comprised the following:

- Extended UK Habitat Classification (UKHab Survey (April – June 2025). A thorough walkover survey of all accessible land within the Survey Area, and where accessible and relevant up to 30 m beyond this, to collect baseline habitat inventory and condition information. The survey paid close attention to any Habitats of Principal Importance or local priorities, including hedgerows. The UKHab standard and protocol will be employed in order to provide a baseline for BNG assessments. Details of the survey (methods and results) are provided in **ES Volume 3, Appendix 9.1: Ecological Baseline Report [EN010168/APP/6.3]**;
- A MoRPh survey was undertaken of all applicable watercourses crossed by the Cable Route Corridor (April – June 2025), primarily to inform BNG requirements;
- A qualitative assessment of habitat suitability for the following species/groups was undertaken at the same time (April - June 2025) to identify those which may be at risk from being impacted by proposals, namely the following:
  - Badgers: badger walkover survey of suitable habitat within the Cable Route Corridor (setts and signs of activity were recorded in all accessible habitats). Details of the survey (methods and results) are provided in **ES Volume 3, Appendix 9-2: Badger Survey Report [EN010168/APP/6.3].**
  - Bats: ground-based, daytime inspections of trees and buildings present within the Cable Route Corridor for potential roost features and signs of roosting. Assessment of potential value of habitats to foraging and

commuting bats. Details of the survey (methods and results) are provided in **Volume 3, Appendix 9-3: Bat Survey Report [EN010168/APP/6.3]**;

- Riparian mammals: the suitability of watercourses in the Cable Route Corridor for otters, water voles and beavers was evaluated, and spot checks conducted to search for evidence of these species at all watercourses within the Cable Route Corridor, with particular consideration given to potential watercourse crossing points.
- Breeding birds: habitats in the Cable Route Corridor were appraised for their suitability for breeding birds, with a particular focus on the likely presence of ground nesting birds such as skylark, yellow wagtail, quail and grey partridge, as well as priority species or species listed under Schedule 1 of the WCA 1981 (as amended), including barn owl, hobby, peregrine, turtle dove, nightingale, red kite and kingfisher.
- Reptiles: habitats in the Cable Route Corridor were assessed for elevated suitability for reptiles.
- Terrestrial and aquatic invertebrates: habitats in the Cable Route Corridor were assessed for elevated suitability for terrestrial and aquatic invertebrates, including white-clawed crayfish.
- Freshwater fish: watercourses in the Cable Route Corridor were assessed for their suitability for freshwater fish, with particular consideration given to potential watercourse crossing points.

9.6.17 Further recommendations were made following this work either in the design of the Scheme (i.e. routing the cable route working area to avoid potential impacts) or in the implementation of additional mitigation (such as pre-commencement surveys, sensitive working methods and seasonal timing of works, and works requiring the presence of Ecological Clerks of Works (EcoCoW)). Further information on these measures is provided in the **Outline Ecological Protection and Mitigation Strategy [EN010168/APP/7.5]**.

Impact Assessment Methodology

9.6.18 The standard approach applied in the UK to Ecological Impact Assessment (EcIA) is that developed by the CIEEM in 2018 and revised in 2022 (Ref 9-46). This will be used to evaluate existing conditions, and to assess the significance of likely effects on ecological features that may arise during construction, operation and maintenance, and decommissioning of the Scheme. This involves determining the relative importance of each ecological feature and undertaking an impact assessment pre- and post-implementation of mitigation measures. From this, any residual effects likely to occur can be identified along with an appreciation of their significance.

Evaluation of Ecological Importance

9.6.19 When evaluating the baseline importance of natural features found on or in proximity to the Scheme, the following characteristics are considered:

- Habitats and species which are irreplaceable, rare or uncommon, either internationally, nationally or more locally;
- Ecosystems and habitats required by important species, populations or species assemblages;
- Species that are afforded legal protection or are the subject of local or regional policy or guidance;
- Priority Species and Habitats under the NERC Act 2006;
- Endemic species or locally distinct sub-populations of a species;
- Species at the edge of their range or that are in decline;
- Species-rich assemblages of plants or animals;
- Habitat diversity, connectivity and/ or other synergistic associations;
- Notably large populations or concentrations of animals considered uncommon or threatened in a wider context; and
- Plant communities that are considered to be typical of valued natural/ semi-natural vegetation types.

9.6.20 Taking the above into account, habitats, species and sites identified in the baseline conditions will all be attributed an ecological importance. The importance, or potential importance, of an ecological feature will be described in a geographical context (i.e. International, National, Regional, County, District and Local importance). A category of 'Site' importance will be applied to a feature which is present or potentially present at the site, but where its importance to nature conservation is of relatively low value in the context of the wider landscape. A further 'Negligible' category will be assigned to features of no particular intrinsic nature conservation importance.

9.6.21 In line with the guidelines set out by CIEEM EcIA Guidelines (Ref 9-46), the impacts of the Scheme will only be assessed on those features with importance equal to, or higher than Local level, or those for which mitigation is required to ensure legal compliance. These features are referred to as Important Ecological Features (IEFs). Non-statutory designated sites will also be identified as IEFs where these lie within the ZoI of the project.

9.6.22 Published selection criteria contained within the selection of biological SSSI can also be referred to aid the assessment of importance. Additionally, where

significant habitats, such as Ancient Woodland, do not carry a designation, these are nevertheless considered at a specified geographic level.

Characterisation of Impacts

9.6.23 Each potential impact on an IEF will be assessed at its respective geographical scale. Where appropriate, the following parameters will be used in characterising impacts and their effects:

- Positive or negative;
- Magnitude (the size of the impact);
- Extent (area over which impact occurs);
- Duration (time impact expected to last before recovery);
- Reversibility (an impact may be permanent or temporary); and
- Timing and frequency (impact may be seasonal e.g. bird nesting season).

9.6.24 Impacts are described as being short-term, medium-term and long-term. Generally, short-term impacts are taken as those which are not anticipated to persist for longer than five years, medium-term impacts those which persist between five and fifteen years and long-term impacts are those which are anticipated to persist over a period in excess of ten years. These general timescales have been taken from CIEEM guidance (Ref 9-47). It should be noted that for certain species groups, such as invertebrates, a short-term impact of two years may constitute four generations and as such may be more consistent with a medium-term impact for this species group. Where short, medium or long-term are considered to deviate from the timeframes described above this is highlighted for that particular habitat or species.

Significance Criteria

9.6.25 Following the methodology described by CIEEM (Ref 9-46), an ecologically significant effect is defined as *"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".* Significance of effects will be described as being 'Significant' or 'Not Significant'.

9.6.26 In line with CIEEM guidance, significance of residual effects will be described as being 'Significant' or 'Not Significant'. As CIEEM guidance avoids and discourages the use of a conversion matrix approaches to assign categories (e.g. Minor, Moderate or Major) to residual effects, 'Significant' residual effects

will be qualified with reference to the appropriate geographical scale at which the effect is considered to be felt.

Application of the Mitigation Hierarchy

9.6.27 The mitigation hierarchy applied during the design of the Scheme follows a stepwise approach of first avoidance, then mitigation and finally compensation of impacts.

9.6.28 Negative impacts can be avoided altogether through fundamental Scheme design choices, such as consideration to which fields to include within the final Scheme design and the extent of the final Order Limits. Designed-in avoidance of impacts is termed embedded mitigation within this assessment. Other forms of embedded mitigation measures include any design measures needed for legal compliance or to implement typical, good practice guidance expected of schemes of this nature, for example the use of protective fencing during the construction phase or the adoption of protective buffer zones free of development which ensure offsets from sensitive habitats. The embedded mitigation taken into account during the impact assessment is set out within Section 9.9.

9.6.29 Additional mitigation is any measure required to reduce a certain impact to acceptable levels where embedded mitigation alone is not sufficient. This is likely to take the form of a specific plan or strategy specific to a species, species group or habitat and will be detailed under each relevant IEF's subheading.

9.6.30 Additional mitigation measures are typically given where likely adverse effects are identified upon the IEFs. The mitigation measures will aim to reduce the overall effect, typically at the location at which the impact occurs. An assessment of residual effects, which takes account of the proposed additional mitigation, is then made. Due consideration is given to the reliability of mitigation measures and the likelihood that they will achieve their stated goals, using the terms defined above.

9.6.31 Mitigation measures are also identified for species which did not qualify as IEF, but which are afforded legal protection under legislation, and as such will require certain precautionary methodologies to avoid offences being committed.

9.6.32 Compensation measures may be appropriate for IEFs which are likely to experience significant negative effects once mitigation options have been exhausted. Compensation measures seek to offset these residual effects, for example through the provision of alternative habitat either elsewhere within or outside of the Order Limits. An examination of the uncertainty in achieving successful compensation will take place. Any remaining residual effects can then be assessed.

9.6.33 Ecological monitoring is likely to form a key role in the success of any proposed mitigation or compensation measures, therefore any likely requirements will

also be discussed and provided within the **Outline LEMP [EN010168/APP/7.18]**, which will be secured under the **draft DCO [EN010168/APP/3.2]**.

9.6.34 Ecological enhancement measures are those which are not expressly required in order to deliver mitigation or compensation but are included to provide further benefits for nature conservation. The Environment Act 2021 contains provisions that require that at least 10% net gain for biodiversity be demonstrated through a BNG assessment (using the Defra Statutory Biodiversity Metric). It is noted that these provisions are not currently in force for NSIPs, however, a BNG assessment forms part of the ES chapter (**Biodiversity Net Gain Assessment Report [EN010168/APP/7.8]**). Paragraph 2.49 of The NPS for Renewable Energy Infrastructure (EN-3) indicates that the assessment "*should consider enhancement, management and monitoring of biodiversity*". It also indicates that *"solar farms have the potential to increase biodiversity value of a site, especially if the land was previously intensively managed. In some instances, this can result in significant benefits and enhancements beyond Biodiversity Net Gain, which result in wider environmental gains which is encouraged".*

9.7 Baseline Conditions

9.7.1 This section provides ecological information describing the existing and anticipated future baseline conditions for the ecology and biodiversity assessment. This information has derived from desk study and field survey data, together with a summary of the types of impacts on ecological features which may arise from the Scheme.

Designated Sites

9.7.2 Full details of designated sites described in this section are provided within ES **Volume 3, Appendix 9-1: Ecological Baseline Report [EN010168/APP/6.3]** although a summary is provided in this section. Designated sites are discussed in relation to the Solar PV Sites and the Cable Route Corridor separately in turn.

Solar PV Sites

9.7.3 There are no international designated sites within or directly adjacent the boundary of the Solar PV Sites.

9.7.4 No international statutory designated sites were identified within 10 km of the Solar PV Sites. However, five international designated sites with qualifying mobile species (bats/migratory birds), and/or with hydrological connectivity, were identified within the wider search radius of 30 km. The search radius was extended for these features due to the highly mobile nature and larger home ranges of these species which can extend any potential functional linkage between them and the Solar PV Sites beyond 10 km. These designated sites

were: the BaBOA Bats SAC; Severn Estuary SAC; Severn Estuary SPA; Severn Estuary Ramsar site; and Salisbury Plain SPA.

9.7.5 Salisbury Plain SPA was scoped out of the assessment with agreement of the Planning Inspectorate at EIA Scoping stage (Ref 9-48) due to both the considerable distance from the Solar PV Sites (circa 28 km away) and the fact that the habitats within the Order Limits are disparate from the expanses of open chalk grassland which characterises Salisbury Plain. The home ranges and foraging grounds for the populations of bird species of open downland for which Salisbury Plain SPA is designated are highly unlikely to overlap with the land within the Order Limits. As such, the land within the Order Limits is not considered to represent FLL.

9.7.6 Details of international statutory designated sites are summarised in **Table 9-4** below. The locations of international statutory designated sites in relation to the Solar PV Sites are shown in **ES Volume 2, Figure 9-1-1: International Statutorily Designated Sites [EN010168/APP/6.2]**.

9.7.7 All international sites are of **International Importance**.

Table 9-4: International Statutory Designated Sites within Study Area

Site Name	Area (ha)	Reason for Designation	Distance from Solar PV Sites
Bath and Bradford on Avon Bats SAC	107.86	A network of caves, mines and man-made tunnels used by bats for hibernation, breeding, mating and as a staging post prior to dispersal. Supports an exceptionally large overwintering population of greater horseshoe bat *Rhinolophus ferrumequinum*, with hibernation sites associated with approximately 15% of UK population. Hibernation sites also support Bechstein's bat *Myotis bechsteinii*. Lesser horseshoe bat *Rhinolophus hipposideros* is also present as a qualifying feature, but not a primary reason for citation. Beyond the designated site itself, an integrated network of commuting routes, foraging areas and roosts used throughout the year are important for supporting the bat populations associated with the SAC. These are categorised as 'sensitive features' within supplementary planning guidance (Ref 9-12), and a series of Core Roosts and 'Core Areas' of particular importance to these populations are identified. Further information is provided in 9.7.12.	12.56 km at the closest point (south of Lime Down C).
Severn Estuary SAC	73,715.40	Supports important Annex I estuarine, intertidal and coastal habitats, as well as associated Annex II fish species.	23.71 km at the closest point (northwest of Lime Down A).

Severn Estuary SPA	24,487.91	Internationally important wintering populations of Annex 1 Bewick's swan *Cygnus columbianus*, and waterfowl species. Nationally important populations of wintering, passage and breeding wetland bird species.	23.71 km at the closest point (northwest of Lime Down A).
Severn Estuary Ramsar	24,662.98	The Severn Estuary Ramsar site's qualifying interest features overlap with those of the Severn Estuary SPA and SAC. The site is of particular importance for hosting internationally important populations of several species of waterbird as well as its migrating fish species.	23.71 km at the closest point (northwest of Lime Down A).
Salisbury Plain SPA	19,714.54	Nationally important populations of Annex 1 species; 10% of UK population of breeding stone curlew *Burhinus oedicnemus*, and 1% of UK population of wintering hen harrier *Circus cyaneus*. Further Annex 1 species are supported in small numbers. Nationally important breeding populations of quail *Coturnix coturnix* (20% UK population) and hobby *Falco subbuteo* (1% of UK population).	27.89 km at the closest point (southeast of Lime Down E).

9.7.8 Four national designated sites for nature conservation were identified within 5 km of the Solar PV Sites, including two SSSIs and two LNRs. This included Harries Ground, Rodbourne SSSI, which is located immediately adjacent Lime Down E. One additional SSSI located within the search area (Stanton St Quinton Motorway Cutting SSSI) is designated solely for its geological features and has not been considered further within this chapter. Details of national statutory designated sites are summarised in **Table 9-5** below. The locations of national designated sites in relation to the Solar PV Sites are shown in **ES Volume 2**, **Figure 9-1-2: National Statutorily Designated Sites within 5km of the Solar PV Sites [EN010168/APP/6.2]**.

9.7.9 All national statutorily designated sites are of **National Importance**

Table 9-5: National Statutory Designated Sites within Study Area

Site Name	Area (ha)	Reason for Designation	Distance from Solar PV Sites
Solar PV Sites			
Harries Ground, Rodbourne SSSI	6.73	Species-rich neutral grassland community and past records of marsh fritillary butterflies.	Immediately adjacent Lime Down E.
Corston Quarry and Pond LNR	0.5	Disused limestone quarry with mesotrophic standing water and calcareous grassland habitats.	1.01 km northeast of Lime Down D.
Sutton Lane	3.43	Lowland neutral grassland habitat.	3.67 km south of Lime Down E.

Meadows SSSI			
Conygre Mead LNR	2.53	Calcareous grassland, damp grassland, pond and woodland habitats.	4.16 km northeast of Lime Down D.

9.7.10 A total of 37 local designated sites for nature conservation were identified within 2 km of the Solar PV Sites. The sites are presented in **Table 9-6** below, the locations of which are shown in **Figure 9-1-3: Non-Statutorily Designated Sites within 2km of the Solar PV Sites [EN010168/APP/6.2]**. The local designated sites comprise 36 LWSs, and one Protected Road Verge.

9.7.11 All non-statutorily designated sites form part of a county-wide network of key local wildlife sites and all considered of **County Importance**.

Table 9-6: Non-Statutory Designated Sites within Study Area

Site Name	Area (ha)	Reason for Designation	Distance from Solar PV Sites
Solar PV Sites			
Chalkenhams LWS	5.64	Unimproved, species-rich neutral grassland and woodland habitat.	Immediately adjacent Lime Down E.
Brickyard Scrub LWS	3.96	Species-rich neutral grassland and pond habitats.	Immediately adjacent Lime Down E.
Bincombe Wood LWS	17.16	Ancient, semi-natural broadleaved woodland habitat.	Immediately adjacent Lime Down E.
Bradfield Wood LWS	9.63	Semi-natural, broadleaved woodland habitat.	Immediately adjacent Lime Down D.
Lord's Wood LWS	2.73	Ancient broadleaved woodland habitat.	Immediately adjacent Lime Down C.
Rodbourne Plantation LWS	2.66	Broadleaved woodland habitat.	Immediately adjacent Lime Down E.
Seagry Wood and Oak Hill LWS	38.05	Mixed plantation on ancient woodland site.	Immediately adjacent Lime Down E.
Surrendell Wood LWS	12.21	Ancient, semi-natural broadleaved woodland habitat.	Immediately adjacent Lime Down C.
Bybrook Meadow LWS	1.99	Unimproved neutral grassland habitat.	0.14 km north of Lime Down A.

Site Name	Area (ha)	Reason for Designation	Distance from Solar PV Sites
Bristol Avon River LWS	150.76	Riverine habitat and important drainage functions.	0.23 km north of Lime Down A.
Foxley Green LWS	0.87	Calcareous and damp neutral grassland communities.	0.23 km northeast of Lime Down B.
West Park Wood – East LWS	4.57	Ancient, semi-natural broadleaved woodland habitat.	0.24 km northeast of Lime Down D.
West Park Wood – West LWS	3.3	Ancient, semi-natural broadleaved woodland habitat.	0.24 km northeast of Lime Down D.
Lower Easton Town Farm Meadows LWS	2.13	Herb-rich unimproved grassland habitat.	0.27 km north of Lime Down A.
Lower Farm Meadows, Sherston LWS	1.37	Calcareous grassland habitat.	0.28 km north of Lime Down A.
New House Farm Meadows LWS	6.93	Species-rich limestone and neutral grasslands, and old oak woodland.	0.29 km northwest of Lime Down A.
Easton Grey Meadow 2 LWS	1.82	Calcareous grassland and wetland habitats.	0.40 km north of Lime Down B.
Easton Grey Meadow 1 LWS	3.35	Calcareous grassland and wetland habitats.	0.42 km north of Lime Down B.
Kingway Barn Meadows LWS	4.15	Neutral meadows with ridge and furrow.	0.50 km west of Lime Down E.
Townfield Farm Meadows LWS	30.45	Calcareous hay meadow habitat.	0.56 km west of Lime Down C.
Brook House Meadow, Luckington LWS	1.78	Pasture and floodplain habitat.	0.60 km northwest of Lime Down C.
Manor Farm Meadows, Sherston LWS	4.22	Floodplain grassland, including areas of unimproved grassland and limestone banks.	0.61 km northwest of Lime Down A.
Cowage Grove LWS	6.45	Oak woodland habitat.	0.64 km east of Lime Down B.

Site Name	Area (ha)	Reason for Designation	Distance from Solar PV Sites
Tyning and Tanhouse Meadows LWS	13.84	Limestone grassland habitat.	0.71 km west of Lime Down C.
Carrier's Farm Meadows, Sherston LWS	3.98	Unimproved calcareous grassland habitat.	0.74 km west of Lime Down A.
Luckington Meadows LWS	1.12	Meadow habitat.	0.86 km west of Lime Down C.
Foxley Grove LWS	8.49	Part-ancient woodland habitat.	0.90 km north of Lime Down B.
Gauzebrook Meadows LWS	3.53	Unimproved limestone grassland along banks of Gauze Brook.	0.95 km north of Lime Down E.
Corston Quarry and Pond LWS	0.49	Disused limestone quarry with mesotrophic standing water and calcareous grassland habitats.	1.01 km northeast of Lime Down D.
Ell Wood LWS	12.97	Ancient, semi-natural broadleaved woodland.	1.06 km south of Lime Down E.
Foxley Estate – Riverside Pasture LWS	7.54	Limestone grassland habitat above derelict water-meadow.	1.10 km north of Lime Down B.
Cranhill Wood LWS	8.87	Ancient woodland habitat with ponds and springs.	1.28 km southwest of Lime Down C.
North Draycot Park LWS	13.59	Old parkland with frequent old oak.	1.29 km south of Lime Down E.
Hyam Wood LWS	16.77	Ancient, semi-natural broadleaved woodland habitat.	1.39 km northeast of Lime Down B.
Littleton Drew Verge	0.18	Protected road verge.	1.74 km southwest of Lime Down C.
Stock Wood LWS	16.83	Ancient, semi-natural broadleaved woodland habitat.	1.84 km south of Lime Down D.
Oldland's Wood LWS	11.68	Woodland habitat with network of ditches.	1.92 km southwest of Lime Down C.

Cable Route Corridor

9.7.12 No statutory designated sites for nature conservation are present within the Cable Route Corridor or immediately adjacent. However, the BaBOA Bats SAC lies approximately 3.77 km to the west of the Cable Route Corridor at the closest point. A 2015 guidance document provided by NE and Wiltshire Council

(Ref 9-12) details a network of sensitive features used by the bat populations of the BaBOA Bats SAC. These include Core Roosts, which are defined in the guidance but in summary are those roost sites where large numbers of the relevant bat species are known to regularly hibernate and breed, and which are judged to have a functional and demographic connection with the SAC population.

9.7.13 The guidance also highlights the landscape surrounding these Core Roosts are likely to be of particular importance for populations of the associated species for foraging and commuting, and are identified as Core Areas. For the bat species of the BaBOA Bats SAC, the Core Areas have been defined as:

- 4 km surrounding greater horseshoe Core Roosts;
- 2 km surrounding lesser horseshoe Core Roosts; and
- 1.5 km surrounding Bechstein's Core Roosts.

9.7.14 Since the publication of this guidance the extent of the consultation zones has undergone amendments. A Core Roost for lesser horseshoe bats near the village of Grittleton (approximately 2 km to the south of Lime Down C – the precise location is withheld) and a corresponding Core Area were declassified in September 2020 due to the roost no longer having been found to meet the Core Roost criteria as set out in the guidance. In 2024 a new Core Area of 1.5 km was applied around three recently identified Bechstein's bat maternity roosts sites near Lackham, to the south of Chippenham.

9.7.15 An amalgamation of up-to-date Core Areas are presented within the 'Impact Zones for Bat Species' layer on the publicly available 'Wiltshire Planning Explorer' map (Ref 9-49). The Cable Route Corridor intersects an Impact Zone for Bat Species for approximately 1.5 km (covering an area of approximately 10.5 ha) to the south-east of Corsham. The location of the Impact Zones for Bat Species in relation to the Cable Route Corridor is presented in **ES Volume 2, Figure 9-1-4: Wiltshire Impact Zones for Bats [EN010168/APP/6.2].**

9.7.16 There are no non-statutory designated sites for nature conservation present within the Cable Route Corridor.

Habitats

9.7.17 The habitats recorded within the Solar PV Sites are summarised in **Table 9-**7 below. This table details the extent of each habitat and its proportion of the total area of the Sites, as well as the baseline BNG condition score. Furthermore, it provides a justification of each habitat's importance, based on its rarity, extent and legislative/policy status.

9.7.18 Habitats recorded within the Cable Route Corridor are detailed in **Table 9-8** below. Where it has not been possible to fully characterise habitats due where access permission could not be secured to survey a particular area, an

assumption has been made with regard to the likely habitats present. Assumptions have been based on a review of satellite imagery, the analysis of open source datasets such as the Priority Habitat Inventory, and the context of other habitats which have been surveyed in the local area. Where local contextual information has been limited, habitats have been assigned categories and conditions on a precautionary basis, taking into account the highest value habitat and condition which are considered likely to occur. Assumed habitats and their respective assumed conditions have been highlighted in separate rows (coloured grey) in **Table 9-8**.

9.7.19 Habitats occurring within the Solar PV Sites and the Cable Route Corridor are described in more detail in **ES Volume 3, Appendix 9-1: Ecological Baseline Report [EN010168/APP/6.3]**, with habitat condition assessments and species lists provided in the **Biodiversity Net Gain Assessment Report [EN010168/APP/7.8**].

9.7.20 The following HPIs all occur within 2 km of the Solar PV Sites as identified through the desk study, and are therefore considered during the assessment in terms of opportunities for enhancement of habitat networks:

- Ancient Woodland;
- Deciduous Woodland;
- Lowland Calcareous Grassland;
- Lowland Meadow;
- Good-Quality Semi-improved Grassland;
- Traditional Orchard;
- Coastal and Floodplain Grazing Marsh; and
- Priority Habitat River.

9.7.21 The only habitat of the above which is present within the Solar PV Sites is Priority Habitat River, although Ancient Woodland, Deciduous Woodland, Lowland Calcareous Grassland, Lowland Meadow, and Good-Quality Semi-improved Grassland all occur immediately adjacent to the Solar PV Sites Boundary.

9.7.22 The following HPIs all occur within the Cable Route Corridor as identified through the desk study:

- Deciduous Woodland; and
- Traditional Orchard.

9.7.23 In addition, Ancient Woodland and Lowland Calcareous Grassland occur directly adjacent the Cable Route Corridor.

9.7.24 The locations of HPIs identified through the desk study are provided in **ES Volume 2, Figure 9-1-5: Priority Habitats and Ancient Woodland within 2km of the Solar PV Sites** and **Figures 9-1-6 to 9-1-7: Priority Habitats and Ancient Woodland within the Cable Route Corridor [EN010168/APP/6.2].**

Table 9-7: Habitat Types within the Solar PV Sites and their Extent and Importance

UK Habitat Classification Habitat Type	Area (ha) / Length (km)	% of Solar PV Sites Area	Sites where Recorded	Condition Assessment Score	Notable Habitat?	Ecological Importance	Rationale
Cropland							
Cereal crops	475.07	63.33	Lime Down A, B, C, D, and E	N/A	Farmland habitats in general are listed on the Wiltshire BAP (and therefore can be considered targets for local conservation action).	Site	Not HPIs and of limited botanical interest.
Non-cereal crops	117.73	15.70	Lime Down A, B, C, D, and E	N/A		Site	
Temporary grass and clover leys	63.61	8.48	Lime Down C and D	N/A		Site	
Arable field margins game bird mix	4.15	0.55	Lime Down C and D	N/A	Arable field margins are an HPI. Farmland habitats in general are listed on the Wiltshire BAP.	Local	An HPI and likely to provide opportunities for a range of wildlife and provides diversity in an otherwise largely monoculture arable setting.
Arable field margins pollen and nectar	1.05	0.14	Lime Down A	N/A		Local	
Arable field margins tussocky	1.14	0.15	Lime Down C and D	N/A		Local	

UK Habitat Classification Habitat Type	Area (ha) / Length (km)	% of Solar PV Sites Area	Sites where Recorded	Condition Assessment Score	Notable Habitat?	Ecological Importance	Rationale
Grassland							
Modified grassland	60.20	8.03	Lime Down A, B, C, D, and E	Good – 25.29% Moderate – 1.15% Poor – 73.56%	No	Site	Not an HPI, and of limited intrinsic biodiversity interest.
Other neutral grassland	14.02	1.87	Lime Down C and E	Good – 46.03% Poor – 53.97%	No	Local	Not an HPI, but is of moderate botanical interest and provides diversity of habitat in an otherwise largely agricultural setting.
Heathland and Shrub							
Mixed scrub	0.63	0.08	Lime Down A, C, D and E	Moderate – 67.48% Poor – 32.52%	No	Site	Although this habitat is likely to offer foraging and sheltering opportunities for a range of protected/notable wildlife species, it is very small in extent and frequently found in the wider landscape.
Woodland							
Other woodland; broadleaved	4.04	0.54	Lime Down A, B, D and E	Moderate – 71.22% Poor – 28.78%	Does not meet HPI criteria. All woodland is listed on the Wiltshire BAP.	Local	Not an HPI, but likely supports a range of associated wildlife, and adds diversity and connective links to the otherwise largely agricultural setting.

UK Habitat Classification Habitat Type	Area (ha) / Length (km)	% of Solar PV Sites Area	Sites where Recorded	Condition Assessment Score	Notable Habitat?	Ecological Importance	Rationale
Rural Trees							
Rural Trees	81 no.	N/A	Lime Down A, C, D and E	Good – 100.00%	No	Local	Not an HPI, but likely supports a range of associated wildlife.
Lakes							
Ponds (priority habitat)	0.33	0.04	Lime Down A, C, D, and E	Moderate – 77.76% Poor – 22.24%	Ponds are an HPI and listed on the Wiltshire BAP.	Local	Ponds qualify as being a priority habitat if they support species of high conservation importance, including UKBAP species. All on-site ponds have therefore been assumed to constitute priority habitat given the likelihood that toads and other amphibians (including great crested newts) may be present. The ponds are part of a network of ponds with numerous ponds in the surrounding landscape.
Sparsely Vegetated Land							
Ruderal/ ephemeral	1.07	0.14	Lime Down C and E	Good – 51.71% Moderate – 48.29%	No	Site	Not an HPI. This habitat is relatively small in extent and easily replaceable in the short-term.
Urban							
Artificial unvegetated,	1.42	0.19	Lime Down C, D and E	N/A	No	Negligible	Of negligible ecological value.

UK Habitat Classification Habitat Type	Area (ha) / Length (km)	% of Solar PV Sites Area	Sites where Recorded	Condition Assessment Score	Notable Habitat?	Ecological Importance	Rationale
unsealed surface							
Bare ground	1.72	0.23	Lime Down A, B, D and E	Poor – 100.00%	No	Negligible	
Developed land; sealed surface	3.8	0.51	Lime Down A, B, C, D, and E	N/A	No	Negligible	
Hedgerows and Lines of Trees							
Native hedgerow	3.57	N/A	Lime Down A, B, C, D, and E	Good – 87.19% Moderate – 12.81%	Hedgerows are an HPI. Ancient and/or species rich hedgerows are listed on the Wiltshire BAP.	District	Given their status as HPIs and Wiltshire BAP habitats, the network of hedgerow types are considered to be of District Importance.
Native hedgerow – associated with bank or ditch	3.87	N/A	Lime Down A, B, C, D, and E	Good – 79.72 Moderate – 20.28%		District	
Native hedgerow with trees	1.63	N/A	Lime Down A, C, D, and E	Good – 59.36% Moderate – 40.64%		District	
Native hedgerow with trees – associated	2.64	N/A	Lime Down A, B, C, D, and E	Good – 61.16% Moderate – 27.81% Poor – 11.03%		District	

UK Habitat Classification Habitat Type	Area (ha) / Length (km)	% of Solar PV Sites Area	Sites where Recorded	Condition Assessment Score	Notable Habitat?	Ecological Importance	Rationale
with bank or ditch							
Species-rich native hedgerow	21.12	N/A	Lime Down A, B, C, D, and E	Good – 94.77% Moderate – 4.41% Poor -0.82%		District	
Species-rich native hedgerow – associated with bank or ditch	8.21	N/A	Lime Down A, B, C, D, and E	Good – 86.64% Moderate – 13.36%		District	
Species-rich native hedgerow with trees	13.77	N/A	Lime Down A, B, C, D, and E	Good – 78.84% Moderate – 19.53% Poor – 1.63%		District	
Species-rich native hedgerow with trees – associated with bank or ditch	8.21	N/A	Lime Down A, B, C, D, and E	Good – 86.64% Moderate – 13.36%		District	
Line of trees	0.90	N/A	Lime Down A, C, and E	Moderate – 91.90% Poor – 8.10%		District	

UK Habitat Classification Habitat Type	Area (ha) / Length (km)	% of Solar PV Sites Area	Sites where Recorded	Condition Assessment Score	Notable Habitat?	Ecological Importance	Rationale
Line of trees (ecologically valuable)	0.37	N/A	Lime Down E	Good – 100.00%		District	
Watercourse							
Priority Habitat River	1.49	N/A	Lime Down D	Moderate – 58.63% Fairly Poor – 41.37%	Rivers are an HPI. Rivers and streams are listed on the Wiltshire BAP.	District	Although not extensive at the Solar PV Sites, given their status as HPIs and Wiltshire BAP habitats, as well as their connectivity with the River Avon, the network of rivers/streams are considered to be of District Importance.
Other rivers and streams	2.15	N/A	Lime Down B, C, D, and E	Fairly Good – 29.55% Moderate – 10.29% Fairly Poor – 60.17%		District	
Ditches	12.05	N/A	Lime Down A, B, C, D, and E	Moderate – 28.67% Poor – 71.33%	No	District	Not an HPI, but likely to support a range of associated species, particularly in conjunction with the wider watercourse network.
Culvert	0.1	N/A	Lime Down B, C, D, and E	N/A	No	Negligible	Of negligible ecological value.

Table 9-8: Habitat Types within the Cable Route Corridor and their Extent and Importance

UKHabitat Classification Habitat Type	Area (ha) / Length (km)	% of Cable Route Corridor Area	Condition Assessment Score	Notable Habitat?	Ecological Importance	Rationale
Cropland						
Cereal crops	184.43 (11.08 assumed)	38.71	N/A	Farmland habitats in general are listed on the Wiltshire BAP.	Site	Not HPIs and of limited botanical interest.
Non-cereal crops	28.56	5.99	N/A		Site	
Temporary grass and clover leys	52.43	11.01	N/A		Site	
Winter Stubble	3.95	0.83	N/A		Site	
Arable field margins cultivated annually	0.18	0.04	N/A	Arable field margins are an HPI. Farmland habitats in general are listed on the Wiltshire BAP.	Local	An HPI and likely to provide opportunities for a range of wildlife and provides diversity in an otherwise largely monoculture arable setting.
Arable field margins tussocky	0.84	0.18	N/A		Local	
Grassland						
Modified grassland	122.62 (8.83 assumed)	25.74	Good – 19.72% Moderate – 5.13% Poor – 75.15%	No	Site	Not an HPI, and of limited intrinsic biodiversity interest.

UKHabitat Classification Habitat Type	Area (ha) / Length (km)	% of Cable Route Corridor Area	Condition Assessment Score	Notable Habitat?	Ecological Importance	Rationale
Other neutral grassland	11.42 (9.29 assumed)	2.40	Good – 81.37% Moderate – 17.84% Poor – 0.80%	No	Local	Not an HPI, but is of moderate botanical interest and provides diversity of habitat in an otherwise largely agricultural setting.
Traditional Orchard	0.11	0.02	Moderate- 100%	Traditional Orchards are an HPI	Local	Relatively small extent of a remnant fragment of an HPI
Heathland and Shrub						
Bramble scrub	0.025	0.01	N/A	No	Site	Although this habitat is likely to offer foraging and sheltering opportunities for a range of protected/notable wildlife species, it is very small in extent and frequently found in the wider landscape, and easily replaceable in the short-term.
Mixed scrub	3.61 (0.01 assumed)	0.76	Good – 29.08% Moderate – 8.41% Poor – 62.51%	No	Site	Although this habitat is likely to offer foraging and sheltering opportunities for a range of protected/notable wildlife species, it is very small in extent and frequently found in the wider landscape.
Woodland						
Lowland mixed deciduous woodland	19.10 (12.10 assumed)	4.01	Good – 63.34% Moderate – 36.66%	Lowland mixed deciduous woodland is an HPI	Local	An HPI, and likely supports a range of associated wildlife, and adds diversity and connective links to the otherwise largely agricultural setting.

UKHabitat Classification Habitat Type	Area (ha) / Length (km)	% of Cable Route Corridor Area	Condition Assessment Score	Notable Habitat?	Ecological Importance	Rationale
Other woodland; broadleaved	7.16	1.50	Moderate – 82.02% Poor – 17.98%	Does not meet HPI criteria. All woodland is listed on the Wiltshire BAP.	Local	Not an HPI, but likely supports a range of associated wildlife, and adds diversity and connective links to the otherwise largely agricultural setting.
Other Coniferous Woodland	3.94	0.83	Poor – 100%	Does not meet HPI criteria. All woodland is listed on the Wiltshire BAP.	Site	Plantation woodland. Not an HPI, likely to support some associated wildlife although the monoculture species composition and age range limits biodiversity value compared to other woodland types.
Rural Trees						
Rural Trees	64 No.	N/A	Good – 60 No. Moderate – 4 No.	No	Local	Not an HPI, but likely supports a range of associated wildlife.
Lakes						
Ponds (priority habitat)	0.55 (0.06 assumed)	0.11	Moderate – 86.72% Poor – 13.28%	Ponds are an HPI and listed on the Wiltshire BAP.	Local	Ponds qualify as being a priority habitat if they support species of high conservation importance, including UKBAP species. All on-site ponds have therefore been assumed to constitute priority habitat given the likelihood that toads and other amphibians (including great crested newts) may be present. The ponds are part of a network of ponds with numerous ponds in the surrounding landscape.

UKHabitat Classification Habitat Type	Area (ha) / Length (km)	% of Cable Route Corridor Area	Condition Assessment Score	Notable Habitat?	Ecological Importance	Rationale
Sparsely Vegetated Land						
Ruderal/ ephemeral	3.15	0.66	Good – 64.97% Moderate – 1.64% Poor – 33.39%	No	Site	Not an HPI. This habitat is relatively small in extent and easily replaceable in the short-term.
Urban						
Allotments	0.26	0.05	Poor – 100%	No	Site	Not an HPI. This habitat is relatively small in extent and easily replaceable in the short-term
Artificial unvegetated, unsealed surface	8.64 (0.01 assumed)	1.81	N/A	No	Negligible	Of negligible ecological value.
Bare ground	0.02	Less than 0.01	Poor – 100%	No	Negligible	
Developed land; sealed surface	25.44	5.34	N/A	No	Negligible	
Hedgerows and Lines of Trees						
Native hedgerow	4.77	N/A	Good – 46.5% Moderate – 48.3% Poor – 5.24%	Hedgerows are an HPI. Ancient and/or species	District	Given their status as HPIs and Wiltshire BAP habitats, the network of hedgerow types are considered to be of District Importance.

UKHabitat Classification Habitat Type	Area (ha) / Length (km)	% of Cable Route Corridor Area	Condition Assessment Score	Notable Habitat?	Ecological Importance	Rationale
Native hedgerow – associated with bank or ditch	4.39	N/A	Good – 60.31% Moderate – 37.71% Poor – 1.98%	rich hedgerows are listed on the Wiltshire BAP.	District	
Native hedgerow with trees	1.15	N/A	Good – 19.34% Moderate – 80.66%		District	
Native hedgerow with trees – associated with bank or ditch	0.95	N/A	Good – 53.15% Moderate – 46.85%		District	
Species-rich native hedgerow	7.38	N/A	Good – 62.53% Moderate – 37.47%		District	
Species-rich native hedgerow – associated with bank or ditch	8.31	N/A	Good – 79.39% Moderate – 20.61%		District	
Species-rich native hedgerow with trees	2.81	N/A	Good – 72.46% Moderate – 27.54%		District	
Species-rich native hedgerow with trees – associated with bank or ditch	7.72 (3.75 assumed)	N/A	Good – 89.26% Moderate – 10.74%		District	
Line of trees	0.87	N/A	Moderate – 23.42%		District	

UKHabitat Classification Habitat Type	Area (ha) / Length (km)	% of Cable Route Corridor or Area	Condition Assessment Score	Notable Habitat?	Ecological Importance	Rationale
			Poor – 76.58%			
Line of trees (ecologically valuable)	0.33	N/A	Good – 9.97% Moderate – 55.59% Poor – 34.44%		District	
Watercourse						
Other rivers and streams	1.04	N/A	Moderate – 51.38% Fairly Poor – 48.62%	Rivers are an HPI. Rivers and streams are listed on the Wiltshire BAP.	District	Although not extensive within the Cable Route Corridor given their status as HPIs and Wiltshire BAP habitats, as well as their connectivity with the River Avon, the network of rivers/streams are considered to be of Local Importance.
Ditches	2.63	N/A	Moderate – 47.55% Poor – 52.45%	No	District	Not an HPI, but likely to support a range of associated species, particularly in conjunction with the wider watercourse network.
Culvert	0.06	N/A	N/A	No	Negligible	Of negligible ecological value.

Species

9.7.25 **Table 9-9** below provides a summary of protected and notable species (or groups of species) that have been identified as present, or potentially present, at the Solar PV Sites and Cable Route Corridor as determined through the desk study and/or through ecological field surveys.

9.7.26 **Table 9-9** also provides a preliminary assessment of each species' (or species group's) importance, based on its rarity, known distribution, legislative/policy status, and suitability of habitat present (where appropriate).

9.7.27 The detailed results of the desk study, detailed survey methodologies and findings of the species-specific surveys conducted, are contained within **ES Volume 3, Appendices 9-1: Ecological Baseline Report to 9-7: Wintering Bird Survey Report [EN010168/APP/6.3]**.

Table 9-9: Protected and Notable Species present or potentially present within the Order Limits and Importance

Species/Species Group	Sites where Present (or Potentially Present)	Protected/Notable Status	Ecological Importance	Rationale
Badgers	[redacted]	Badgers are a widespread species in England but are protected under the Protection of Badgers Act 1992 (as amended).	Site	21 badger setts of varying size, status and levels of activity have been recorded within [redacted]. Eight badger setts have also been recorded within the [redacted]. Badgers are not a SoCC with numbers having increased in recent years, and receive legal protection on a welfare basis due to historic and ongoing persecution.
Bats (Roosting)	[redacted]	Bats and their roosts are fully protected under the Habitats Regulations. Six species are listed as Species of Principal Importance (SPI) (Barbastelle, Bechstein's bat, soprano pipistrelle, brown long-eared, lesser horseshoe and greater horseshoe. All bats are Wiltshire BAP species.	District (Assemblage)	Roosts belonging to the following six species are known to be present with 2 km of the Solar PV Sites as revealed by the desk study: • Common pipistrelle (five unspecified roosts (locations withheld) plus five EPS licences granted for other projects. One granted EPS licence was associated with a breeding roost [redacted] three licences were associated with a non-breeding roost [redacted], and one licence was associated with a non-breeding roost [redacted] • Soprano pipistrelle (two unspecified roosts (locations withheld)-plus one granted EPS licence associated with a non-breeding roost [redacted] • Natterer's bat (four unspecified roosts (locations withheld)-plus one granted EPS licence associated with a breeding roost [redacted] • Serotine (three unspecified roosts (locations withheld) plus four granted EPS licences. One granted EPS licence was associated with a breeding roost [redacted]. Three granted EPS licences were associated with a non-breeding roost [redacted]

Species/Species Group	Sites where Present (or Potentially Present)	Protected/Notable Status	Ecological Importance	Rationale
				• Brown long-eared bat (eight unspecified roosts (locations withheld) plus granted two EPS licences. One granted EPS licence was associated with a breeding roost [redacted] and one was associated with a non-breeding roost [redacted] and • Lesser horseshoe bat (three unspecified roosts (locations withheld)). A large number of trees (637) and a small number of buildings (four) within the Solar PV Sites hold potential to support roosting bats. These are all expected to be retained and adequately protected through embedded mitigation measures and as such no specific survey to identify the presence or likely absence of bat roosts has taken place. Roost sites belonging to the following species are known to be present with 2 km of the Cable Route Corridor as revealed by the desk study: • Common pipistrelle (five unspecified roosts (locations withheld) plus one granted EPS licence, associated with a non-breeding roost); • Soprano pipistrelle (two granted EPS licences associated with a non-breeding roost close to the Existing National Grid Melksham Substation); • Natterer's bat (two unspecified roosts (locations withheld)); • Brown long-eared bat (five unspecified roosts (locations withheld)); and • Lesser horseshoe bat (six unspecified roosts (locations withheld) plus two granted EPS licences, both associated with non-breeding roosts). In addition [redacted] with potential to support roosting bats are present within the [redacted]

Species/Species Group	Sites where Present (or Potentially Present)	Protected/Notable Status	Ecological Importance	Rationale
				It is likely that a proportion of trees within the [redacted] will support bat roosts used by a variety of those species which are known to roost in features in trees. Details of trees and buildings with bat roost potential are provided in **ES Volume 3, Appendix 9-3: Bat Survey Report [EN010168/APP/6.3].**
Bats (Foraging/Commuting)	[redacted]	Bats and their roost are fully protected under the Habitats Regulations. Six species are listed as SPI (Barbastelle, Bechstein's bat, soprano pipistrelle, brown long-eared, lesser horseshoe and greater horseshoe. All bats are Wiltshire BAP species.	Local (Assemblage)	Bat activity surveys undertaken to date across the Solar PV Sites have identified a diverse assemblage of bats. Full details and results of bat activity surveys are provided in **ES Volume 3, Appendix 9-3: Bat Survey Report [EN010168/APP/6.3].** However a summary of species recorded are provided here, with relative activity levels by each species indicated in brackets: • Common pipistrelle (high activity) • Soprano pipistrelle (moderate activity) • Nyctalus – aggregation of noctule and Leisler's bat, although the majority of activity is likely to be from noctule (moderate activity) • Myotis – aggregation of Myotis bat species (low to moderate activity) • Serotine (low activity) • Barbastelle (low activity) • Long-eared bats – assumed to be brown long-eared bat (low activity) • Lesser horseshoe (low activity) • Nathusius' pipistrelle (very low activity) • Greater horseshoe (very low activity).

Species/Species Group	Sites where Present (or Potentially Present)	Protected/Notable Status	Ecological Importance	Rationale
				It is likely that a similar assemblage of bats use the habitats present within the Cable Route Corridor, and this evaluation is also considered appropriate for the Cable Route Corridor for the bat assemblage as a whole, on account of the similarity of habitat across the local landscape. However, for approximately 1.5 km the Cable Route Corridor does pass through a Core Area' - an area likely to be of particular importance for greater horseshoe bat populations associated with the BaBOA Bats SAC.
Dormice	Lime Down A, B, C, D, E and Cable Route Corridor.	Dormice are fully protected under the Habitats Regulations, and are an SPI and Wiltshire BAP species.	District (assumed)	A single record of this species appears within the desk study results from the surrounding landscape. Suitable habitat is present within the Solar PV Sites in the form of woodland, hedgerows and scrub which are connected to additional suitable habitat in the surrounding landscape (refer to **ES Volume 3, Appendix 9-1: Ecological Baseline Report [EN010168/APP/6.3]).** As such dormice have been assumed to be present in all suitable habitat at the Solar PV Sites, of which there is very little within the development footprint owing to embedded mitigation (section 9.9 refers) and thus potential for impacts on dormice are consequently low. No specific survey has been undertaken for dormice, which is considered proportionate on the basis that this species is assumed to be present in all suitable habitat applying a precautionary approach, as well as the low potential for impacts to occur. Similarly suitable habitat in the form of woodland, scrub and hedgerow habitat which is well connected to other suitable habitat in the surrounding area is present within the Cable Route Corridor, and dormice have been assumed present in all suitable habitat. This evaluation is also considered appropriate for the Cable Route Corridor, as the rational given for the Solar PV Sites above is also applicable.
Beaver	None	Beavers are fully protected under the	Site	No evidence of beavers has been recorded at the Solar PV Sites during surveys for riparian mammals (principally focused on otter and

Species/Species Group	Sites where Present (or Potentially Present)	Protected/Notable Status	Ecological Importance	Rationale
		Habitats Regulations.		water voles) and this species is not believed to be present currently. However, this species has been recorded within the Avon River catchment which is connected hydrologically to the Solar PV Sites and the Cable Route Corridor. Beavers are increasing in abundance in England and expanding their range and could inhabit suitable watercourses within the Order Limits in the future. Given that no evidence of the species has been recorded within the Order Limits at present, but their future presence within the Order Limits within lifetime of the Scheme cannot be ruled out, an evaluation of Site importance is considered appropriate to ensure sufficient consideration is given to potential future impacts on beavers in this assessment. This evaluation is also considered appropriate for the Cable Route Corridor on account of the similarity of watercourse networks across the local landscape including those intersecting the Cable Route Corridor.
Otter	Lime Down A, B, C, D, E and Cable Route Corridor.	Otters are fully protected under the Habitats Regulations, and are an SPI and Wiltshire BAP species.	District	Records of otter were returned by the desk study, including from Gauze Brook which flows through Lime Down D. Full details and results of otter surveys are provided in **ES Volume 3, Appendix 9-6: Otter and Water Vole Survey Report [EN010168/APP/6.3].** Field signs evidencing the presence of otters have been recorded along the Gauze Brook and Gabriel's Well watercourses in Lime Down D and E respectively. Habitats elsewhere across the Solar PV Sites were considered largely suboptimal, although may be used for dispersing through the landscape. This evaluation is also considered appropriate for the Cable Route Corridor on account of the similarity of ditch and watercourse networks across the local landscape, including within the Cable Route Corridor.
Water Vole	Lime Down D and Cable	Water voles are protected under the WCA, and are an	District	Several records of water vole were returned by the desk study from the River Avon, which is hydrologically connected to the Solar PV Sites.

Species/Species Group	Sites where Present (or Potentially Present)	Protected/Notable Status	Ecological Importance	Rationale
	Route Corridor	SPI and Wiltshire BAP species.		Full details and results of water vole surveys are provided in **ES Volume 3, Appendix 9-6: Otter and Water Vole Survey Report [EN010168/APP/6.3].** Surveys have identified evidence of the presence of this species within ditches at Lime Down D. Suitable habitat is also present within Lime Down E, although no evidence of this species has been recorded here and American mink, which is a predator of water voles has been confirmed at Lime Down E. Habitat elsewhere at the Solar PV Sites is suboptimal for water voles, typically comprising farm drainage ditches which appear to regularly dry up and/or are poorly connected to other watercourses. This evaluation is also considered appropriate for the Cable Route Corridor on account of the similarity of ditch and watercourse networks across the local landscape, including within the Cable Route Corridor.
Brown Hare	Lime Down A, B, C, D, E and Cable Route Corridor	Brown hares are an SPI and Wiltshire BAP species.	Local	Several records of this species were returned by the desk study and a number of sightings of hares have been made incidentally during ecological surveys conducted at the Solar PV Sites. This evaluation is also considered appropriate for the Cable Route Corridor on account of the similarity of lowland farmland habitat across the local landscape, including within the Cable Route Corridor.
Harvest Mouse	Lime Down A, B, C, D, E and Cable Route Corridor	Harvest mice are an SPI and Wiltshire BAP species.	Local	A single record of harvest mouse was returned during the desk study, however tussocky grassland, arable field margins and hedgerows provide suitable habitat for the species with connectivity to woodland blocks within the Sites. Five harvest mouse nests were recorded incidentally during ecological surveys at the Solar PV Sites, at field boundaries in Lime Down B and D. This evaluation is also considered appropriate for the Cable Route Corridor on account of the similarity of lowland farmland habitat across the local landscape, including within the Cable Route Corridor.

Species/Species Group	Sites where Present (or Potentially Present)	Protected/Notable Status	Ecological Importance	Rationale
Hedgehog	Lime Down A, B, C, D, E and Cable Route Corridor	Hedgehogs are an SPI and Wiltshire BAP species.	Local	A large number of hedgehog records were returned during the desk study. Arable and agricultural grassland habitats within the Solar PV Sites are largely sub-optimal for hedgehog, however field boundary habitat and woodland/scrub edges provide suitable habitat for the species. This evaluation is also considered appropriate for the Cable Route Corridor on account of the similarity of habitat across the local landscape, including within the Cable Route Corridor
Polecat	Lime Down A, B, C, D, E and Cable Route Corridor	Polecats are an SPI and Wiltshire BAP species.	Local	Records of polecat were returned during the desk study, and woodland, hedgerow and scrub habitat bounding agricultural fields within the Solar PV Sites and comprises suitable habitat for the species. This evaluation is also considered appropriate for the Cable Route Corridor on account of the similarity of habitat across the local landscape, including within the Cable Route Corridor.
Deer	Lime Down A, B, C, D, E and Cable Route Corridor	Current UK legislation relevant to deer (the Deer Act 1991 and the Wild Mammals (Protection) Act 1996) imposes close seasons and limitations on the type and calibres of weapons permitted for hunting deer, as well as protection from unnecessary cruelty but from a	Site	Several sightings of roe deer and red deer have been made incidentally during ecological surveys conducted at the Solar PV Sites and within the Cable Route Corridor. Deer species are a not SoCC in the UK with numbers at historically high levels and are not afforded any legal protection from a nature conservation objective.

Species/Species Group	Sites where Present (or Potentially Present)	Protected/Notable Status	Ecological Importance	Rationale
		welfare objective only.		
Reptiles	Lime Down A, B, C, D, E and Cable Route Corridor	All UK reptiles are protected under the WCA and are SPIs. Slow worm, grass snake and adder are Wiltshire BAP species.	Local (assumed)	A relatively small number of records of widespread reptile species slow-worm and grass snake were revealed by the desk study. A grass snake slough (shed skin) was incidentally recorded during a breeding bird survey on 27 June 2023, at a grassy margin at the southern edge of Field C1. Habitats within the Solar PV Sites are largely sub-optimal for reptiles with suitable habitat restricted to hedgerow bases, ditches, tussocky grassland and woodland/scrub edges. of which there is very little within the development footprint owing to embedded design (section 9.9 refers) and thus potential for impacts on reptiles are consequently low. No targeted surveys have been undertaken for reptiles which is considered proportionate on the basis that this species group is assumed to be present in all suitable habitat applying a precautionary approach, as well as the low potential for impacts to occur. This evaluation is also considered appropriate for the Cable Route Corridor on account of the similarity of habitat across the local landscape, including within the Cable Route Corridor
Amphibians	Lime Down A, B, C, D, E and Cable Route Corridor	Great crested newts (GCN) are fully protected under the Habitats Regulations. Great crested newt and common toad are SPIs. Great crested newt, common toad and	Local	A number of records of amphibians, including GCN, have been returned by the desk study. Suitable breeding habitat is provided by ponds present at the Solar PV Site. Arable and agricultural grassland habitats within the Sites are largely sub-optimal for amphibians during their terrestrial phase, however field boundary and grassland habitats and woodland/scrub edges are more suitable. Full details of GCN surveys conducted are provided in **ES Volume 3, Appendix 9-5: Great Crested Newt Survey Report [EN010168/APP/6.3].** Surveys have confirmed presence of GCN at

Species/Species Group	Sites where Present (or Potentially Present)	Protected/Notable Status	Ecological Importance	Rationale
		palmate newt are Wiltshire BAP species.		two ponds within Sites Lime Down C and E, as well as within a further 14 ponds located within 250 m of the Solar PV Sites. A large number of ponds are present within 250 m of the Cable Route Corridor. These ponds have not been subject to GCN surveys as the Scheme will adopt DLL for works within the Cable Route Corridor, which assumes the presence of GCN within local waterbodies and provides a framework and compensation measures to reduce and offset impacts on this species.
Breeding Birds	[redacted]	All breeding birds and their nests are protected under the WCA. 47 bird species recorded during surveys at the Solar PV Sites are SoCC, being either red or amber listed within the RSPB/BTO Birds of Conservation Concern list (Ref 9-50), SPIs, and/or Wiltshire BAP species.	District (assemblage)	A large number of existing records of bird SoCC were returned by the desk study. Woodland, hedgerows, scrub and trees offer suitable nesting and foraging opportunities for a range of bird species, and arable and grassland habitats within the Sites provide habitat of varying suitability for birds of open farmland Full details and results of breeding bird surveys conducted to date are provided in **ES Volume 3, Appendix 9-4: Breeding Bird Survey Report [EN010168/APP/6.3].** Surveys have recorded a diverse assemblage of breeding bird species across the Solar PV Sites, with both open fields and boundary habitats, such as hedgerows, woodland and watercourses, providing suitable nesting habitat for a wide range of species. Several ground-nesting species of conservation concern were recorded within the Solar PV Sites and were either confirmed or considered likely to be breeding, including skylark (with an estimated 164 territories recorded), yellow wagtail, and grey partridge, utilising the large agricultural fields and associated margins. Several passerine species were recorded breeding (or probably breeding) within hedgerows across the Solar PV Sites such as dunnock, whitethroat and yellowhammer.

Species/Species Group	Sites where Present (or Potentially Present)	Protected/Notable Status	Ecological Importance	Rationale
				The total area covered by the Solar PV Sites also contributes to the evaluation of ecological importance. This evaluation is also considered appropriate for the Cable Route Corridor on account of the homogeneity of similar lowland farmland habitat across the local landscape, including within the Cable Route Corridor.
Overwintering Birds	[redacted]	36 bird species recorded during surveys at the Solar PV Sites are SoCC being either red or amber listed, SPIs, and/or Wiltshire BAP species.	District (assemblage)	A large number of existing records of bird SoCC were returned by the desk study. Full details and results of wintering surveys are provided in **ES Volume 3, Appendix 9-7: Wintering Bird Survey Report [EN010168/APP/6.3].** Wintering bird surveys have recorded a diverse assemblage of wintering bird species across the Solar PV Sites and immediately surrounding land. The mosaic of habitats present within the Solar PV Sites provide opportunities for a variety of species, including farmland, woodland and wetland specialists. The Solar PV Sites likely constitute important habitat within the local landscape, particularly considering the large area covered by the Solar PV Sites. extent of the Study Area. Overall, Sites Lime Down C and E consistently supported higher abundance of notable species, however such variation between the Solar PV Sites may be attributable to land management practices at the time of survey, rather than notable difference in the ecological value between all Sites. Open field habitats supported the greatest diversity of species and abundance of wintering birds including several migrant species, with resident species typical of hedgerows and woodlands generally recorded at the boundaries. This evaluation is also considered appropriate for the Cable Route Corridor on account of the homogeneity of similar lowland farmland

Species/Species Group	Sites where Present (or Potentially Present)	Protected/Notable Status	Ecological Importance	Rationale
				habitat across the local landscape, including within the Cable Route Corridor
Terrestrial Invertebrates	Lime Down A, B, C, D and E and Cable Route Corridor	A number of invertebrate species recorded in the desk study are SPIs and/or Wiltshire BAP species.	Local	A number of records of notable invertebrate species, including several butterfly and moth species targeted for conservation action, were returned by the desk study. Intensively managed arable fields, which comprise the majority of habitat within the Solar PV Sites, are not considered to be of high intrinsic value for invertebrates or likely to support notable communities of invertebrate species. For these reasons, as well as the fact that embedded mitigation measures will ensure that potential impacts on these species groups are largely avoided, it was not considered proportionate to carry out specific terrestrial invertebrate surveys. Other less frequently encountered habitats within the Sites provide opportunities for a range of invertebrate species, particularly within habitats at field edges and areas of botanically diverse grassland. This evaluation is also considered appropriate for the Cable Route Corridor on account of the similarity of lowland farmland habitat across the local landscape, including within the Cable Route Corridor
White-Clawed Crayfish	Lime Down D and E and Cable Route Corridor	Protected under the WCA. SPI and Wiltshire BAP species.	District (assumed)	No specific survey has been undertaken for white-clawed crayfish, although this species appears within the desk study records from watercourse within the surrounding landscape. Suitable habitat for white-clawed crayfish is present at the Gauze Brook and Gabriel's Well watercourses in Lime Down D and E and a small number of connected wet ditches, and this species has been assumed to be present within these features. Watercourses elsewhere at the Solar PV Sites are largely unsuitable due to regular drying out, and overall there is very little suitable habitat within the development footprint owing to embedded design (section 9.9 refers) and thus potential for impacts on this species are consequently low. No targeted surveys have been undertaken for white-clawed crayfish which is considered proportionate

Species/Species Group	Sites where Present (or Potentially Present)	Protected/Notable Status	Ecological Importance	Rationale
				on the basis that this species group is assumed to be present in all suitable habitat applying a precautionary approach, as well as the low potential for impacts to occur. This evaluation is also considered appropriate for the Cable Route Corridor on account of the similarity of ditch and watercourse networks across the local landscape, including within the Cable Route Corridor.
Freshwater Fish	Lime Down D and E and Cable Route Corridor	European eel is protected under the Eels (England and Wales) Regulations. Brown trout is protected under the Salmon and Freshwater Fisheries Act. European eel and brown trout are both SPIs. Common bullhead is an Annex II species although it is common and widespread. All of the above, as well as brook lamprey, are Wiltshire BAP species.	Local	No specific surveys for fish have been undertaken although records of European eel, brown trout, brook lamprey and common bullhead at nearby watercourses were returned by the desk study. Suitable habitat for these species is present at the Gauze Brook and Gabriel's Well watercourses as well as a small number of connected wet ditches in Lime Down D and E. These species have been assumed to be present within these features, of which there is very little within the development footprint owing to embedded design (section 9.9 refers) and thus potential for impacts on fish are consequently low. No targeted surveys have been undertaken for fish which is considered proportionate on the basis that this species group is assumed to be present in all suitable habitat applying a precautionary approach, as well as the low potential for impacts to occur. The majority of watercourses and ditches elsewhere at the Solar PV Sites are largely unsuitable due to regular drying out for most of the year (refer to **ES Volume 3, Appendix 9-1: Ecological Baseline Report [EN010168/APP/6.3]**). This evaluation is also considered appropriate for the Cable Route Corridor on account of the similarity of ditch and watercourse networks across the local landscape, including within the Cable Route Corridor.

Species/Species Group	Sites where Present (or Potentially Present)	Protected/Notable Status	Ecological Importance	Rationale
Plants	Lime Down A, B, C, D and E and Cable Route Corridor	Shepherd's needle, which has been recorded at the Solar PV Sites is an SPI and a Wiltshire BAP species. A number of other species recorded in the desk study are considered notable at a national or county level and and/or Wiltshire BAP species.	Local	The desk study returned several records of protected and notable plant species. Habitats across the Solar PV Sites were generally typical of intensively managed agricultural land, with limited opportunities for notable botanical communities to thrive. However, a small number of uncommon arable weed species were infrequently recorded during ecological surveys conducted across the Solar PV Sites, including rye brome in several places, as well as a population of shepherd's needle occurring in Lime Down B. This evaluation is also considered appropriate for the Cable Route Corridor on account of the similarity of lowland farmland habitat across the local landscape, including within the Cable Route Corridor.
Invasive Non-native Species	Lime Down A, B, C, D and E and Cable Route Corridor	It is illegal to release or cause the spread on INNS in the wild under the WCA and the Invasive Alien Species (Enforcement and Permitting) Order 2019.	N/A	Records of several invasive non-native animal and plant species were returned by the desk study from the local area. Field signs of American mink have been observed within the watercourse network at Lime Down E. No invasive plant species have been recorded at the Solar PV Sites.

Table 9-10: Summary of Ecological Evaluation

Ecological Feature	Ecological Importance	Important Ecological Feature?
Bath and Bradford on Avon SAC	International	Yes
Severn Estuary SAC/SPA/Ramsar	International	Yes
Salisbury Plain SPA	International	No
Harries Ground, Rodbourne SSSI	International	Yes
Sutton Lane Meadows SSSI	National	Yes
Corston Quarry and Pond LNR	National	Yes
Conygyre Mead LNR	National	Yes
Chalkenhams LWS	County	Yes
Brickyard Scrub LWS	County	Yes
Bincombe Wood LWS	County	Yes
Bradfield Wood LWS	County	Yes
Lord's Wood LWS	County	Yes
Rodbourne Plantation LWS	County	Yes
Seagry Wood and Oak Hill LWS	County	Yes
Surrendell Wood LWS	County	Yes
Bybrook Meadow LWS	County	Yes
Bristol Avon River LWS	County	Yes
Foxley Green LWS	County	Yes
West Park Wood – East LWS	County	Yes
West Park Wood – West LWS	County	Yes
Lower Easton Town Farm Meadows LWS	County	Yes
Lower Farm Meadows, Sherston LWS	County	Yes
New House Farm Meadows LWS	County	Yes
Easton Grey Meadow 2 LWS	County	Yes
Easton Grey Meadow 1 LWS	County	Yes
Kingway Barn Meadows LWS	County	Yes
Townfield Farm Meadows LWS	County	Yes
Brook House Meadow, Luckington LWS	County	Yes
Manor Farm Meadows, Sherston LWS	County	Yes
Cowage Grove LWS	County	Yes
Tyning and Tanhouse Meadows LWS	County	Yes
Carrier's Farm Meadows, Sherston LWS	County	Yes
Luckington Meadows LWS	County	Yes

Ecological Feature	Ecological Importance	Important Ecological Feature?
Foxley Grove LWS	County	Yes
Gauzebrook Meadows LWS	County	Yes
Corston Quarry and Pond LWS (andLNR)	County	Yes
Ell Wood LWS	County	Yes
Foxley Estate – Riverside Pasture LWS	County	Yes
Cranhill Wood LWS	County	Yes
North Draycot Park LWS	County	Yes
Hyam Wood LWS	County	Yes
Littleton Drew Verge	County	Yes
Stock Wood LWS	County	Yes
Oldland's Wood LWS	County	Yes
Arable habitat: (cereal crops; non-cereal crops; temporary grass and clover leys)	Site	No
Arable field margins	Local	Yes
Modified grassland	Site	No
Other neutral grassland	Local	Yes
Traditional orchard	Local	Yes
Scrub (mixed scrub and bramble scrub)	Site	No
Woodland (lowland mixed deciduous woodland and other woodland; broadleaved) Woodland (other coniferous woodland))	Local Site	Yes No
Rural trees	Local	Yes
Ponds	Local	Yes
Ruderal/ephemeral	Site	No
Urban habitat (allotments) Urban habitat (artificial unvegetated, unsealed surface; bare ground; developed land; sealed surface)	Site Negligible	No No
Hedgerows and lines of trees (all)	District	Yes
Watercourses (priority habitat river; other rivers and streams)	District	Yes
Ditches	Local	Yes
Badgers	Site	No – but included in assessment due to legislative protection
Bats (roosting)	District (Assemblage)	Yes

Ecological Feature	Ecological Importance	Important Ecological Feature?
Bats (foraging/commuting)	Local (Assemblage)	Yes
Dormice	District (assumed)	Yes
Beavers	Site	Yes
Otters	District	Yes
Water voles	District	Yes
Brown hares	Local	Yes
Harvest mice	Local	Yes
Hedgehogs	Local	Yes
Polecats	Local	Yes
Deer	Site	No
Reptiles	Local (assumed)	Yes
Amphibians	Local	Yes
Breeding birds	District (assemblage)	Yes
Overwintering birds	District (assemblage)	Yes
Terrestrial invertebrates	Local	Yes
White-clawed crayfish	District (assumed)	Yes
Freshwater fish	Local	Yes
Plants	Local	Yes
Invasive non-native species	N/A	No – but included in assessment due to legislative context

Future Baseline

9.7.28 This section considers those changes to the baseline conditions, as described above, that might occur in the absence of the Scheme and during the time period over which the Scheme would be in place. The future baseline scenarios are set out in **Chapter 6: EIA Methodology [EN010168/APP/6.1]**.

9.7.29 In the absence of the Scheme, it is anticipated that the Solar PV Sites would remain in predominantly arable production, with associated intensive management regimes. Such intensive systems are predicted to entail the continued requirement for additional soil inputs and conditioners, with likely continued, incrementally or accumulatively negative implications for wildlife.

9.7.30 Additionally, climate change is set to pose new challenges for both farming and wildlife, with less predictable and more extreme weather, potentially with increased occurrence of drought conditions

9.7.31 Given these predicted future pressures, it is possible that the condition of habitats and populations of species present within the Solar PV Sites could be degraded or diminished. The valuation of importance of the IEFs present within the Solar PV Sites may consequently be reduced or increased, depending on the local/regional/national conservation context of the receptors in question. Should populations of a receptor decline nationally but persist within the Solar PV Sites, then its valuation would increase. However, should the ranges or populations of receptors expand in response to climate change, then the importance of the receptor in the Solar PV Sites may decrease.

Designated Sites

9.7.32 The future baseline conditions for designated sites would remain broadly unchanged, as future development would be expected to adhere to relevant legislation and policy to ensure adverse impacts are avoided. Climate change may however impact the habitats and/or species for which the sites are designated, thereby changing the status or inclusion of components of each designated site. Furthermore, habitats which become more threatened or rare over time may lead to the inception of more designated sites locally, especially wetland or woodland habitats which are relatively uncommon within the Order Limits.

Habitats

9.7.33 The future baseline conditions for habitats would remain broadly unchanged, although continued use of intensive arable systems may further degrade the soil and thereby also degrade the quality of the habitats present. Climate change may also have adverse impacts on habitats, especially with less regular weather and climate patterns; extremes of temperature, drought and flooding could all degrade habitat quality or lead to the pronounced scarcity of some in the future.

Species

9.7.34 The future baseline conditions for certain species may change. Future development would be expected to adhere to relevant legislation and policy to ensure adverse impacts are avoided in the main, but there may be residual impacts on particular species. Climate change may also have adverse impacts on various species, especially with less regular weather and climate patterns; extremes of temperature, drought and flooding could all impact food availability and breeding success. Conversely, climate change may benefit certain species and allow the expansion of their ranges and/ or increases to their populations.

9.8 Potential Impacts

9.8.1 The CIEEM guidance for impact assessment (Ref 9-46) draws a necessary distinction in EcIA between 'impacts' and 'effects'. An 'impact' is an action resulting in changes to an ecological feature, whereas an 'effect' is the outcome to an ecological feature from an impact.

9.8.2 The following potential sources of ecological impacts during the construction, operation and decommissioning phases of the Scheme are discussed in this section to provide context in the assessment of likely significant effects. The examples given are not exhaustive.

Construction Phase

9.8.3 Construction phase impacts may include:

- **Habitat Loss and Habitat Change**: Limited habitat loss (for example at hedgerows) may occur where access for construction and operation and maintenance is required, where existing field accesses cannot be used or need to be widened. Other examples include clearance to facilitate any permanent hardstanding such as foundations or footings. Habitat change will principally be associated with the reversion of arable fields to grassland and other habitats through management, as well as habitat creation where valuable habitat creation opportunities are identified;
- **Killing and Injury**: Habitat clearance and the actions of vehicles and plant during construction has the potential to cause direct harm to species;
- **Fragmentation**: Described by CIEEM as, "*The breaking up of a habitat, ecosystem or land-use type into smaller parcels with a consequent impairment of ecological function*". Potentially in combination with habitat loss and habitat change, fragmentation can reduce the function of a habitat as well as impede the ability of a species to disperse and maintain a viable population. Installation of fencing or culverting streams may also cause fragmentation, as well as through excessive light and noise disturbance;
- **Disturbance**: Pressures or changes in the environment acting on individuals of a species so as to alter their behaviour may arise through noise, movement and vibration during construction operations, as well as increased human presence;
- **Pollution and Habitat Degradation**: Release of chemical, sediment or dust pollution can interfere with the normal function of habitats and directly harm species, while processes such as erosion, compaction and alteration of soil/water chemical composition cause the degradation of habitat quality. The construction phase risks the release of pollutants through vehicle and plant movement/operation as well the introduction of new materials onto and

into the soil. Protection of sensitive features will be important in safeguarding them throughout the life of the Scheme; and

- **Habitat Creation and Enhancement**: The creation of new woodland, grassland, hedgerow and wetland habitats within the Order Limits will increase the quantum of these habitats available in the Sites. Additionally, the enhancement of retained habitats through development-free buffer zones and increased habitat connectivity will increase the quality and permeability of the Sites to different species. Creation/ installation of habitat features, such as artificial nesting boxes or wood piles, will also increase the availability of nesting/ roosting/ sheltering sites for different species. Beneficial effects may also be derived from the cessation of cultivation, chemical treatments and soil inputs.

Operation and Maintenance Phase

9.8.4 Operational phase impacts may include:

- **Habitat Loss and Habitat Change**: Significant impacts from these are not anticipated as operation and maintenance will be largely benign, unless major unexpected maintenance or repair events are required following damage to infrastructure. Routine replacement of panels and batteries at the end of their lifespan (anticipated to be once for solar panels and up to five times for batteries, respectively, during the lifetime of the Scheme) would not be expected to entail significant habitat loss or change, since the supporting infrastructure (panel frames and BESS Area) will already be in place, although previously decommissioned access points and tracks used during the construction of the Scheme may need to be re-opened to facilitate the transport of materials around the Sites where the maintenance tracks alone are not sufficient. Ongoing habitat maintenance will seek to ensure the favourable condition and enhancement of all newly created and retained habitat for the life of the Scheme. Ecological habitat and species monitoring will be key to realising this;
- **Killing and Injury**: Routine operational works are unlikely to give rise to these effects, although there is the risk of direct harm to species from the movement of vehicles around the Sites (including during the replacement of panels and batteries during the lifetime of the Scheme), or the trapping of certain species within the fencing or fenced area;
- **Fragmentation**: The presence of a solar farm is anticipated to be habituated to by most mobile species, especially with the creation of new, and enhancement of retained, habitats. However, such impacts will vary between species groups. Typical perimeter fencing is not considered to impede the movement of most mammals, which may continue to move through, beneath or potentially over fencing, although movement of deer is likely to be impacted;

- **Disturbance**: Operational disturbance may occur through the routine movement of vehicles and personnel on site (including during the replacement and regular maintenance of panels and batteries during the lifetime of the Scheme), as well as the presence of low-level noise associated with electrical equipment. Light reflection and glare may be another factor;
- **Electro-magnetic Fields**: An assessment of effects of EMFs generated by the Scheme on human health is provided in **Chapter 20: Other Environmental Matters [EN010168/APP/6.1]**. Chapter 20 focuses solely on human receptors however and not on ecological features. The potential for effects of anthropogenic EMFs on ecology is an emerging and a poorly researched issue. It is feasible that EMFs emanating from electrical cables could impact certain species which utilise naturally generated EMFs (for instance for navigation), although to date there is very little evidence of significant behavioural changes from EMFs generated by electric cables. The size of generated fields are highly contingent on geometry, voltage and current, and it is considered that EMFs associated with the higher voltage export cable are more likely to risk impacts than those potentially emanating from interconnecting cables across the Scheme. All electrical cables associated with the Scheme will be buried underground; buried cables typically have their electric fields fully attenuated by cable sheathing and the substrate under which they are buried. However, magnetic fields and induced electric fields are not necessarily attenuated in this way, and there lies a risk of effects on receptive wildlife species, particularly on a number of fish or invertebrate species which are known to have evolved sensitivity to electric and/or magnetic fields. In terms of terrestrial species, it is important to note that there is no evidence to suggest that typical solar array infrastructure can cause impacts and, due to the burial, sheathing and relatively low voltage of cabling within generating stations, the overall risk of EMFs resulting in significant effects on terrestrial wildlife is considered highly unlikely. There is some risk of EMFs affecting fish in the vicinity of the 400-132 kV cables (i.e. where the cable is required to cross beneath main rivers);
- **Pollution and Habitat Degradation**: The risk of these impacts during operation and maintenance are overall very low, especially where good maintenance practice is followed to avoid further pollution events or degradation of adjacent habitats. Pollution risks also extend to include impacts resulting from fire management, in the unlikely event this were to occur. Risks are further increased around battery energy storage infrastructure, as the water used on surrounding habitats to control fire may create a source of contaminated fire water runoff into surrounding water bodies, without appropriate drainage and pollution control allowed for at the design stage. Potential impacts relating to contaminated water will be

addressed specifically in **Chapter 11: Hydrology, Flood Risk and Drainage [EN010168/APP/6.1]**, and **Chapter 19: Ground Conditions and Contamination [EN010168/APP/6.1]**; and

- **Habitat Creation and Enhancement**: Ecological benefits can be maximised through the implementation of a habitat management and monitoring programme for the life of the Scheme. Beneficial effects may also be derived from the cessation of cultivation, chemical treatments and soil inputs, where the Scheme remains operational across multiple decades.

Decommissioning Phase

9.8.5 Considering the anticipated 60-year lifespan of the Scheme, the assessment of decommissioning effects is conservative and informed by the legal, policy and conservation constraints and priorities present at the time of application. Measures to mitigate impacts will be set out within the **Outline Decommissioning Strategy (Outline DS) [EN010168/APP/7.14]**, submitted with the DCO application. A detailed version of the **Outline DS** will be produced prior to the commencement of decommissioning and will be secured through the DCO. The detailed DS will reflect good practice, at the time of decommissioning.

- **Habitat Loss and Habitat Change**: Even if not the case for all areas of the Scheme, it has been assumed that the fields will be returned to agricultural use upon decommissioning when returned to the original landowner, therefore this habitat change will need to be considered, including impacts on any newly created habitats;
- **Killing and Injury**: As per the construction phase, risks of direct harm to species and how this will be managed, will be considered;
- **Habitat Fragmentation**: While the removal of development infrastructure as a reversal of the construction phase is unlikely to result in habitat fragmentation, the reversion to agriculture may impact connectivity between habitats networks and species populations, which may have arisen as a result of the Scheme;
- **Disturbance**: Disturbance impacts are likely to be the same as those described within the construction phase; and
- **Pollution and Habitat Degradation**: Pollution and habitat degradation risks are likely to be the same as the construction phase.

9.9 Embedded Mitigation

9.9.1 Throughout the Scheme's design process, decisions have been made to avoid impacts and effects on ecology and biodiversity as far as practicable. These 'embedded 'design measures are supplemented by other impact control

measures that are typically required as a result of legislation, policy and/or standard industry practices. These embedded mitigation measures are taken account of within the assessment of effects in this chapter prior to the identification of any additional specific mitigation measures. The following embedded mitigation measures have been incorporated into the Scheme design.

Construction Phase Embedded Mitigation

Buffer Zones

9.9.2 The Scheme has been designed to retain the most valuable habitats and protect these with undeveloped buffer zones during construction and operation and through the decommissioning of the Scheme. Similarly, habitats with particular importance for protected/notable species, even if the habitats are of low importance in themselves, will be retained outside the development area, where appropriate, to avoid impacts.

9.9.3 Buffers from field boundary habitats and other ecological features have been applied according to a set of ecological importance criteria. Buffers are measured from the centre line of the hedgerow, root protection area of the tree canopy (in the case of woodland or individual trees) or the bank top of the watercourse. Buffers will not contain any array structures, hard standing or electrical hardware. Protective construction-phase fencing will also observe these buffer distances and will help to ensure that areas of habitat within the buffers are not subject to damage during the construction phase. The layout of ecological buffers is provided in **ES Volume 3, Appendix 9.9: Schedule of Protective Ecological Buffers [EN010168/APP/6.3]** and will be secured through implementation of the **Outline EPMS [EN010168/APP/7.19]** and the **Outline LEMP [EN010168/APP/7.18]**. The measurement criteria are as follows:

- 8 m minimum from ditches;
- 10 m minimum from ditches with signs of water vole, ponds where GCN are absent, ‘outlying’ or ‘annexe’ badger sett, or individual trees.
- 15 m minimum from all woodland, hedgerows, lines of trees, and designated sites, as well as some minor watercourses depending on their ecological value;
- 30 m minimum from ‘main’ or ‘subsidiary’ badger setts; and
- 50 m from ponds with confirmed evidence of GCN, or where the presence of great crested newts has been assumed due to inconclusive results.

9.9.4 In areas where two or more such features are present, the largest set minimum buffer will be applied. For instance, where a hedgerow is present alongside the top of a ditch bank, a minimum undeveloped buffer of 15 m will be retained from

the outer edge of the hedgerow which will also encompass the 8/10 m applicable ditch buffer.

9.9.5 Other, bespoke buffers around bat roosts and the nesting sites of Schedule 1 birds will be implemented on a case-by-case basis, taking into account the specific species' requirements.

9.9.6 Within the above-mentioned buffer zones, habitat management measures to provide net gains for biodiversity are set out within the **Outline LEMP [EN010168/APP/7.18]**

Design and Selection of Access Locations

9.9.7 Access for construction (at both the Solar PV Sites and the Cable Route Corridor) and operational maintenance has been specifically designed to utilise existing field entrances and gaps in hedgerows and other linear habitats wherever possible. This has been completed through collaboration between several technical disciplines, and through scrutinising OS, topographical and aerial imagery. Through this exercise, the need for new gaps in hedgerows or new ditch crossings has been minimised as far as possible. Internal access/maintenance tracks have also been routed so as to avoid designated ecological buffer zones wherever possible. New permanent gaps through hedgerows into fields are understood to measure approximately 3.5-6 m in width, in keeping with typical agricultural accesses (as set out within **Chapter 3: The Scheme [EN010168/APP/6.1]**) and the ecological mitigation measures determined to be necessary for the opening of gaps are set out within the **Outline Ecological Protection and Mitigation Strategy (Outline EPMS) [EN010168/APP/7.19]**.

9.9.8 Any hedgerow removal required to facilitate temporary access tracks will be reinstated following completion of construction.

Grid Connection and Interconnecting Cable Installation

9.9.9 An iterative process has been followed in the design of the Cable Route Corridor, whereby potential ecological constraints were identified over a wide area (the Cable Route Search Area outlined in the PEIR), which has been continually refined through development of the ES in order to determine the least impactful option wherever practicable. The Cable Route Corridor has been sited to avoid or minimise impacts on valuable ecological features as identified during the desk study and ecological fieldwork. In addition, trenchless technologies (such as HDD) will be adopted for selected 'avoidance areas' (**Chapter 3: The Scheme [EN010168/APP/6.1]**) within the Cable Route Corridor at particularly sensitive features (such as important watercourses, railway corridors and woodland).

9.9.10 Horizontal directional drilling operations will involve the excavation of a launch pit at the drilling start point and a reception pit at the end point. Both the launch

and reception pits will be situated a minimum of 10 m from any watercourse and will be fully backfilled and reinstated upon completion of the cable installation. The exact locations and dimensions of these pits will be finalised during detailed design.

9.9.11 In other, less sensitive locations, the cable will cross habitats through open cut trenching. Gaps created in hedgerows required for cable installation will measure up to 12 m wide to accommodate a trench and haul road. . The anticipated habitat and hedgerow impacts within the Cable Route Corridor are temporary (for the duration of the cable route installation), and they will be reinstated as soon as possible through hedgerow and grassland replanting/translocation/re-seeding. The ecological avoidance, mitigation and compensation measures determined to be necessary for cable route installation are set out within the **Outline EPMS [EN010168/APP/7.19].**

Siting of Temporary Construction Compounds

9.9.12 As described in section 9.7, the Cable Route Corridor intersects an Impact Zone for Bat Species, which is considered to be of particular importance for populations of bat species associated with the Bath and Bradford-on-Avon SAC. This has been considered as part of the Scheme design and no Temporary Construction Compounds will be sited within the Impact Zones for Bat Species.

Construction Environmental Management Plan

9.9.13 An **Outline Construction Environmental Management Plan (Outline CEMP) [EN010168/APP/7.12]** has been produced to accompany the ES. The **Outline CEMP [EN010168/APP/7.12]** details measures and approaches to be adopted which will limit the likelihood of effects upon retained habitats through damage, pollution and disturbance during the construction phase in order to secure the mitigation measures set out in the ES. The **Outline CEMP [EN010168/APP/7.12]** is intended to be followed by those responsible for the construction of the Scheme. The **Outline CEMP [EN010168/APP/7.12]** contains (among others) the following provisions:

- Detail on the location and specification of temporary and permanent protective fencing to be installed prior to the onset of construction. The buffer zones specified in this chapter will drive these locations;
- Restrictions on the use of fuels and other contaminants in proximity to boundary features and other sensitive habitats;
- Measures to limit dust-generating activities, such as when working in dry conditions; and
- Measures to limit the mobilisation of sediments and run-off, such as when working in very wet conditions or the use of silt fencing when working in ditches.

Ecological Protection and Mitigation Strategy

9.9.14 An **Outline Ecological Protection and Mitigation Strategy (Outline EPMS) [EN010168/APP/7.19]** has been produced to support the ES and **Outline CEMP [EN010168/APP/7.12]** by providing more detailed ecology-focussed protection and mitigation prescriptions for the construction phase which complements the more general environmental prescriptions of the **Outline CEMP.** As for the **Outline CEMP** and **Outline LEMP [EN010168/APP/7.18]**, under a requirement of the draft DCO, a detailed version of the EPMS will need to be approved by the relevant local authority which must be substantially in accordance with the **Outline EPMS**. The **Outline EPMS** summarises the measures and approaches to be adopted which will limit the likelihood of impacts occurring upon retained habitats through damage, pollution and disturbance during the construction phase in order to enact the mitigation requirements set out in this Chapter. The document will apply to all aspects of the construction phase, including cable installation, energy storage and solar array construction. The **Outline EPMS** contains (among others) the following embedded mitigation measures:

- An EcoCoW will be designated at the onset of the construction phase, which will provide ecological supervision during the completion of any works which have the potential to impact protected and notable species, as appropriate;
- Criteria under which the EcoCoW would be required in order to oversee certain construction activities which have the potential to impact on protected species, such as localised habitat clearance, and ditch/watercourse engineering works. These criteria would trigger the need for EcoCoW attendance and, potentially, pre-commencement surveys or preparation by an ecologist, as well as follow up monitoring or reporting;
- Criteria under which certain potentially impactful operations would need to be restricted to particular months or seasons in order to lessen likely adverse ecological effects (for example, hibernation or nesting season for particular species);
- Details of task-specific Method Statements for potentially ecologically impactful works as identified in this Chapter. For example, monitoring during proposed HDD beneath watercourses;
- Restrictions on the use of fuels and other contaminants in proximity to boundary features and other sensitive habitats;
- Measures to limit the dust generating activities, such as when working in dry conditions;
- Measures to limit the mobilisation of sediments and run-off, such as when working in very wet conditions or the use of silt fencing when working in ditches or watercourses;

- Construction personnel will receive a Toolbox Talk detailing the presence of sensitive ecological features at or close to the Sites and Cable Route Corridor and will be informed that no materials should be stored in, or vehicles drive through, buffer zones; and
- Temporary site lighting during construction will be required to enable safe working during construction during hours of darkness (likely over the winter months only) and will be designed as far as reasonably practicable to minimise potential for light spillage outside the Solar PV Sites and Cable Route Corridor, particularly towards valuable ecological habitats. Standard good practice measures would be employed to minimise light spill, including glare, during construction. A sensitive lighting strategy will specify where and how any artificial lighting will be used, which will serve to mitigate adverse impacts on ecological receptors such as bats.

9.9.15 It should be noted that the **Outline EPMS [EN010168/APP/7.19]** will also contain details of any specific additional mitigation measures required as identified within this assessment of effects contained within this chapter.

Operation and Maintenance Phase Embedded Mitigation

9.9.16 Operation and maintenance of the Solar PV Sites will require minimal intervention and as such levels of disturbance (light, noise and human presence) upon wildlife within the Sites will be minimal, and likely lower or equivalent to baseline levels, during the operational phase. The only exception to this will be during the replacement of panels or batteries, which is understood to be approximately once for solar panels and up to five time for batteries during the lifetime of the Scheme, respectively.

9.9.17 The undeveloped buffer zones will safeguard important receptors for the lifetime of the Scheme. Such buffer zones will also provide sufficient and appropriate working areas to maintain habitats within the Scheme, such as hedgerows, without conflict with the routine operation and maintenance of the Scheme. The **Outline LEMP [EN010168/APP/7.18]** contains habitat management measures to take place within the above-mentioned buffer zones which will provide net gains for biodiversity.

9.9.18 A standoff of at least 3 m between the perimeter security fencing and the array structures will be implemented in order to facilitate movement for maintenance vehicles within the arrays.

9.9.19 Habitat under the arrays and within buffers, easements and other designated ecological mitigation areas have each received habitat creation and management prescriptions in order to deliver BNG and contribute to policy-led green infrastructure and Nature Recovery Network principles. The rationale for all mitigation is set out in this Chapter and all such enhancements are further detailed within the **Outline LEMP [EN010168/APP/7.18]**. Prescriptions include

substantial new hedgerow and tree planting, reinforcement planting at existing hedgerows and field boundaries, extensive grassland habitat creation and sympathetic management both within buffers and within the arrays, as well as discrete, valuable habitat creation (e.g. ponds and meadows) in appropriate locations. The BNG assessment can be found in **Biodiversity Net Gain Assessment Report [EN010168/APP/7.8**].

9.9.20 With the exception of land that has been excluded from development, the perimeter of the Solar PV Sites will be fenced for security purposes.

9.9.21 Where land has been excluded from development within the Solar PV Sites, these areas have been examined during the design phase of the Scheme for their potential to be managed for ecological mitigation and enhancement, in order to provide BNG and contribute to policy-led green infrastructure and Nature Recovery Network principles. Where there is significant potential for this land to deliver ecological mitigation and/or BNG, this land has been retained within the Scheme and will be managed throughout the operational phase to maximise its value as ecological mitigation or enhancement land, taking account of any other environmental constraints and enhancements which may also be relevant. These measures are discussed in later sections within this document, and areas designated for ecological mitigation/enhancement are displayed in the **Outline LEMP [EN010168/APP/7.18]**.

9.9.22 For the purpose of this assessment, and as described in **Chapter 3: The Scheme [EN010168/APP/6.3]**, it is assumed all habitats within the Solar PV Sites will be managed with machinery and there would be no grazing. However, should consent be granted, grazing by sheep will be explored, noting that there are no known landowner restrictive covenants or other reasons that would prevent such use. Management proposals are contained within the **Outline LEMP [EN010168/APP/7.18]**.

9.9.23 As noted in **Chapter 3: The Scheme [EN010168/APP/6.3]** lighting is not required within the Solar PV Arrays for the operational phase. Motion sensing security lighting will be provided within substations and within the BESS Area, to be used only for maintenance and security purposes. This is set out in the **Outline Operational Environmental Management Plan (OEMP) [EN010168/APP/7.13**]. A sensitive lighting strategy as part of the detailed OEMP will specify how this artificial lighting will be installed and used, which will serve to mitigate adverse impacts on ecological receptors which are adversely impacted by lighting, such as bats.

Decommissioning Phase Embedded Mitigation

9.9.24 During the decommissioning phase, the protective buffer zones established during construction and maintained during operation will be honoured to avoid adverse impacts on valuable habitats outside of the operational array.

9.9.25 It is considered likely that the effects and associated mitigation measures required during the decommissioning phase will be similar to those identified for the construction phase, however further mitigation measures may be required, depending on the future baseline of the Scheme at the point of decommissioning. As a result, pre-decommissioning surveys and ecological assessments will be required to identify whether the embedded mitigation of the Scheme is fully appropriate for the future baseline of the Scheme at the time of the decommissioning phase, and to conform with all applicable biodiversity policies and legislation. This approach is set out within, and will be implemented through, the **Outline Decommissioning Strategy (ODS) [EN010168/APP/7.14].**

9.10 Assessment of Likely Impacts and Effects

9.10.1 This section considers the potential impacts outlined in Section 9.8 and, taking into account the embedded mitigation measures as detailed in Section 9.9, assesses the potential for the Scheme to generate effects using the methodology as detailed in Section 9.6.

Bath and Bradford on Avon Bats SAC

Construction Phase Impacts

9.10.2 This designated site is outside of the Order Limits and lies 12.56 km from the Solar PV Sites. It is also 3.77 km from the Cable Route Corridor at the closest point. The Order Limits are sufficiently distant from the SAC that no direct impacts will occur. However, a restricted section of land within the Order Limits associated with the temporary works within the Cable Route Corridor is likely to contain habitat that can be considered FLL with respect to greater horseshoe bats for which the SAC is designated. This is discussed in more detail below.

9.10.3 Bat activity surveys to date have recorded the use of the Solar PV Sites by qualifying species of the SAC. Details of bat activity surveys are provided in **ES Volume 3, Appendix 9-3: Bat Survey Report (EN010168/APP/6.3)**.

Solar PV Sites – Horseshoe Bats

9.10.4 Relatively low activity by lesser horseshoe bats has been recorded during these surveys, with a total of 3,045 passes at an average of 1.94 passes per night. Very low activity by greater horseshoe bats has been recorded, with a total of 57 passes at an average of 0.04 passes per night. It is not known, nor is it possible to know without recourse to ringing/tracking studies, whether individuals of both species recorded at the Solar PV Sites are associated with the populations supported by the SAC. Foraging and commuting habitats of highest importance for the two horseshoe species of bats are typically deciduous woodland, scrub, hedgerows, watercourses and permanent pasture (e.g. Ref 9-51 & Ref 9-52). Permanent pasture coverage at the Solar PV Sites is comparably small, accounting for approximately 16.2 ha or 2.2 % of the total

area of land covered by the Solar PV Sites, split between Lime Down C and E (namely fields C23, E9, E11, E12 and E19).

9.10.5 Arable fields, which form the majority of the Order Limits, are typically not preferred for foraging, with pasture grassland and woodland being more productive. Both horseshoe bat species typically roost in caves and underground structures during the winter, and old buildings during the summer, both of which are generally lacking at the Solar PV Sites. Four agricultural buildings have been identified within the Solar PV Sites which offer varying potential to support roosting bats, all of which will be retained and protected. This is further discussed in under the 'bats' subheading below.

9.10.6 It is important to note that the Solar PV Sites do not intersect at any point with any of the Wiltshire Impact Zones for Bat Species designated for horseshoe bats. These zones encompass a precautionary 2 km radius (for lesser horseshoe bats) or 4 km (for greater horseshoe bats) around each of the core breeding roosts (a.k.a. Core Roosts) known to be critical in the support of the SAC population of horseshoe bats, within which, the majority of the sustenance for juvenile bats is sourced. Therefore, suitable habitats for foraging, roosting and dispersal within these 2 km/4 km zones are considered to be 'functionally linked' to the SAC and projects or plans which may impact them would require detailed consultation and assessment. In their statutory consultation response of 19 March 2025, NE advised that [redacted] was situated adjacent to an Impact Zone for lesser horseshoe bats and as such, may be considered FLL. It is believed that this was based on incorrect information, since the Impact Zone which is being referred to was de-listed by Wiltshire Council in 2020 owing to the change of status of the roost around which it centred. This means that Lime Down C remains over 3.12 km away from the nearest Impact Zone and, noting the low detection rates during surveys, it should not be considered as FLL.

Solar PV Sites - Myotis Bats

9.10.7 Surveys have recorded moderate activity by Myotis species of bats at the Solar PV Sites to date. This activity is likely to be an aggregation of several Myotis species, including more common and widespread species than Bechstein's (a qualifying species of the BaBOA Bats SAC) such as Natterer's bat *Myotis nattereri*, whiskered bat *Myotis mystacinus*, Brandt's bat *Myotis brandtii* and Daubenton's bat *Myotis daubentonii*. However, Myotis calls are difficult to distinguish to species level and thus it is not known whether Bechstein's bat have been recorded so far, or whether any associated with the populations supported by the SAC use the Solar PV Sites.

9.10.8 Bechstein's bat is closely associated with ancient and mature deciduous woodland, which is not present within the Solar PV Sites although is present in places immediately adjacent. However this species typically does not use open farmland habitats, which forms the vast majority of habitat at the Solar PV Sites, for foraging and commuting. Furthermore, apart from three Highway

Improvement Areas (covered in more detail in 9.10.16 below), there is no intersection between the Order Limits and any Wiltshire Impact Zone for Bat Species designated for Bechstein's bat. It is consequently considered that the Order Limits are not FLL on account of distance from Core Roosts and Impact Zones, and the very low likelihood that a significant proportion of the SAC population (e.g. less than 1%) would utilise land within the Solar PV sites or Cable Route Corridor. Nevertheless, it is assumed on a precautionary basis that a proportionately small component of the detected Myotis bat species assemblage derive from Bechstein's bat. As such, protective buffers of at least 15 m from all key Bechstein's' bat habitat in the form of woodland and hedgerows will be provided as part of the embedded mitigation measures ensuring these key habitats will be retained, protected and unaffected by the proposals. In summary, it is considered highly unlikely that any significant impacts upon the Bechstein's bat population supported by the SAC would occur during the construction phase.

Cable Route Corridor

9.10.9 The habitats within the Cable Route Corridor are similar to those within the Solar PV Sites, and therefore there is the potential for some areas to provide habitat of value to foraging and commuting Bechstein's bats and bats of both horseshoe species.

9.10.10 The siting of the Cable Route Corridor has taken into account the presence of any habitats or features which are likely to be of elevated value for the qualifying bat species of the SAC. In particular, the habitats within the Impact Zones for Bat Species, which are an amalgamation of Core Areas around Core Roosts for species of the SAC, have been considered when siting the Cable Route Corridor. The land within the Impact Zones for Bat Species is considered to represent FLL for the SAC, containing habitats and features likely to be of particular importance for associated populations.

9.10.11 The Cable Route Corridor passes through an Impact Zone for approximately 1.5 km in one location to the southeast of Corsham and west of Gastard. The area of Impact Zone intersected by the Cable Route Corridor is approximately 10.5 ha, and is shown on **ES Volume 2, Figure 9-1-4: Wiltshire Impact Zones for Bats [EN010168/APP/6.2]**. With reference to the 2015 NE/Wiltshire Council guidance, it appears this area of Impact Zone where the Cable Route Corridor passes through is at the eastern edge of a greater horseshoe bat Core Area extending 4 km from the Box Mine component site of the SAC. The Cable Route Corridor does not intersect a Core Area for Bechstein's or lesser horseshoe bat according to the 2015 NE/Wiltshire Council guidance. It can be taken that this 10.5 ha of land within the Cable Route Corridor is FLL, within which construction phase impacts resulting from the cable installation works can be expected to affect a smaller area of this land, given that a 25 m working

width will be required within the existing typically 50 m wide Cable Route Corridor.

9.10.12 Impacts associated with temporary loss of foraging habitat within the 25 m typical working width of the Cable Route Corridor would be unlikely to result in significant effects due to the relatively small land take. All habitat within the Cable Route Corridor affected during the construction phase will be reinstated upon completion of the works.

9.10.13 Impacts resulting from temporary loss of habitat could be exacerbated in locations used for Temporary Construction Compounds along the Cable Route Corridor, due to the larger land take required for compounds. However, as part of the embedded mitigation package, no Temporary Construction Compounds will be sited within the Impact Zones for Bat Species, ensuring minimal impacts on areas likely to be of most importance for bat populations associated with the SAC.

9.10.14 Fragmentation impacts could occur where hedgerows need to be removed for cabling works within the Cable Route Corridor. This would be a temporary impact as all hedgerows will be reinstated on completion of works. However, hedgerows are typically used by all UK bat species, including those associated with the SAC, for foraging and/or commuting around the landscape. Large gaps in hedgerows, even if temporary, could impede the ability of bats to move between roost sites and foraging areas and result in detrimental impacts on bat populations associated with the SAC. Such impacts could occur both within and outside of identified Impact Zones. For example, a Core Area is applied for Bechstein's bat around three maternity roosts near Lackham, to the south of Chippenham (**ES Volume 2, Figure 9-1-4: Wiltshire Impact Zones for Bats [EN010168/APP/6.2]** refers) which are considered to be functionally and demographically connected with the Bechstein's population supported by the SAC. Although the Cable Route Corridor does not intersect this Core Area, it does run between the Core Area (which lies to the east of the Cable Route Corridor) and the SAC (which lies to the west). It is therefore possible that unmitigated works within the Cable Route Corridor could result in fragmentation impacts, by impeding populations of Bechstein's bat moving between the SAC and the identified maternity roosts within the Core Area.

9.10.15 In order to minimise fragmentation impacts, the typical 25 m working width for the Cable Route Corridor will be narrowed to 12 m at all locations required for hedgerow breaches as set out in section 9.9. For hedgerows lying within the Impact Zones for Bat Species, this will be a maximum of 10 m. In all cases, the relatively small sizes of these gaps are considered to be not uncommon between connective habitats within an agricultural landscape and ably crossed by bat species, including greater horseshoes, without impeding the ability of individual bats to move around the landscape. Greater horseshoe bats have a short-range echolocation (believed to be up to 10 m (Ref 9-53)), with research

by Pinaud et al. (Ref 9-54) recommending gaps of no more than 38 m between hedgerows and other landscape features to maintain connectivity for greater horseshoe bats. Similarly, while Bechstein's bats are believed to favour woodland canopies and dense hedgerows when commuting, they are known to cross open habitats when travelling from, or returning to, roost sites (Ref 9-55) with a number of studies showing evidence of Bechstein's bats crossing roads (Ref 9-56), including the A350 near Trowbridge (Ref 9-13). It is therefore considered temporary gaps of between 10-12 m will not significantly impede bats of the SAC when moving between roost sites and foraging areas around the landscape.

Highway Improvement Areas

9.10.16 The Order Limits include various sections of existing highway within which localised improvements to the existing highway will be completed to facilitate access to the Scheme, such as road edge reinforcements or temporary removal of street signs/furniture. Five such Highway Improvement Areas are sited with the Impact Zones for Bat Species. However, in all cases, works to take place at these areas will be highly localised with minimal impacts on existing vegetation, and are thus expected have a negligible impact on bats using such areas for foraging or commuting.

Overall

9.10.17 With the above embedded mitigation measures, it is considered that the effects potentially arising from these impact pathways on the component species and sites within the BaBOA Bats SAC will be **neutral and non-significant.**

Operation and Maintenance Phase Impacts

9.10.18 Permanent loss of any FLL could reduce the available foraging habitat for bat species associated with the SAC. No permanent habitat loss within any area considered to represent FLL is anticipated to occur, as habitats within the Cable Route Corridor (including where it intersects the Impact Zones for Bat Species) will be reinstated on completion of works and no FLL is present within the Solar PV Sites.

9.10.19 No operation and maintenance phase impacts are therefore anticipated to occur within the Cable Route Corridor on bats associated with the BaBOA SAC.

9.10.20 Overall a **neutral, non-significant** effect on the BaBOA SAC is anticipated during operation and maintenance of the Scheme.

Severn Estuary SAC and SPA

Construction Phase Impacts

9.10.21 An assessment on whether the Scheme will have a likely significant effect upon the Severn Estuary SAC and SPA is also considered further in the **Habitat**

Regulations Assessment (HRA) Report [EN010168/APP/7.10] that accompanies the DCO application.

9.10.22 These designated sites lie 23.71 km from the Order Limits at the closest point. The Order Limits are sufficiently distant from the Severn Estuary that no direct impacts will occur. Land within the Order Limits is markedly different to the estuarine and intertidal habitats which are cited within the SAC designation.

9.10.23 Breeding and wintering bird surveys have been conducted across the Solar PV Sites during 2023 to 2025. Full details of these surveys are provided in ES **Volume 3, Appendix 9-4 Breeding Bird Survey Report [EN010168/APP/6.3] and Appendix 9-7 Wintering Bird Survey Report [EN010168/APP/6.3]**. Neither survey has recorded any use of the Solar PV Sites by qualifying bird species of the Severn Estuary SPA, namely Bewick's swan, greater white-fronted goose *Anser albifrons*, shelduck *Tadorna tadorna*, gadwall *Anas strepera*, dunlin *Calidris alpina*, or redshank *Tringa totanus*.

9.10.24 Two species included within the 'Waterbird' assemblage interest feature of the Severn Estuary SPA citation have been recorded using the Solar PV Sites, namely teal *Anas crecca* and whimbrel *Numenius phaeopus*. The Severn Estuary supports nationally important numbers of teal during the winter months, and whimbrel during the winter and when on passage.

9.10.25 A pair of teal were recorded on a pond in Lime Down D during a wintering bird visit in February 2024. An individual whimbrel was seen on one occasion at Lime Down D in April 2024. This was considered likely to be on spring passage to its breeding range further north (whimbrel breeding range is restricted to northern Scotland and the Shetland Islands in the UK). No other instances of whimbrel or teal using the Solar PV sites have been noted during surveys and neither species showed a strong association with the Solar PV Sites.

9.10.26 According to the Severn Estuary SPA citation, the population of teal supported by the SPA during the winter months is 1,998. The population of whimbrel supported by the SPA is 246 when on spring passage. It is not known, nor is it possible to know from standard survey methods, whether the small number of teal and whimbrel recorded at the Solar PV Sites are associated with the Severn Estuary populations, but surveys have recorded fewer than 0.5% of the populations cited for both species and the Solar PV Sites are therefore not considered to represent functionally linked habitat for these species.

9.10.27 Additionally, land within the Order Limits is not considered to represent functionally-linked habitat for the largely coastal and estuarine fish species which are qualifying species cited within the Severn Estuary SAC designation, namely sea lamprey *Petromyzon marinus*, river lamprey *Lampetra fluviatilis* and twaite shad *Allosa fallax*, due to the distance from the Order Limits (minimum 68 km) and numerous existing barriers to fish dispersal at the lower and middle

reaches of the River Avon (further discussed under 'Severn Estuary Ramsar' below.

9.10.28 Watercourses within the Order Limits have some hydrological connection with the Severn Estuary SAC and SPA via the River Avon, a tributary of the Severn. The River Avon itself is not present within the Order Limits, although sections of several smaller tributaries of the River Avon lie within the Solar PV Sites and the Cable Route Corridor and thus the habitats within both are potentially susceptible to short to medium-term degradation impacts during the construction phase, arising from discharge/deposition of sediments, dust and contaminants. Following the course of the River Avon, the SAC/SPA is located more than 68 km downstream of the Order Limits (over 100 km downstream of the Solar PV Sites) and it is likely that any such impacts of the scale which may potentially occur will be attenuated over such distances. Nevertheless, ecological buffers have been embedded into the design of the Scheme (as shown on the **Landscape and Ecology Mitigation Plan [EN010168/APP/6.2]),** in order to minimise the likelihood of adverse impacts arising on watercourses which are connected to the River Avon during the construction phase.

9.10.29 Additionally, embedded mitigation measures to minimise the likelihood and severity of pollution events, dust deposition and run-off arising during the construction and operation and maintenance phases, have been incorporated into the Scheme. The **Outline CEMP [EN010168/APP/7.12]** and **Outline EPMS [EN010168/APP/7.19]** detail how vehicles, plant and materials will be transported to the construction zone, as well as other standard environmental protection measures that will apply to the construction phase, such as dust suppression, pollution control measures and protection of adjacent habitats/watercourses from surface runoff.

9.10.30 Given that embedded mitigation measures will minimise any potential impacts on the above designated sites during the construction phase, it is currently considered that all reasonable steps will be taken to ensure that that the magnitude of any impact would be negligible even assuming a worst case scenario and **no significant adverse effects** will occur on the Severn Estuary SAC/SPA during the construction phase.

Operation and Maintenance Phase Impacts

9.10.31 Operationally, impacts on these designated sites are likely to be negligible, owing to the nature of the Scheme whereby no further construction activity or other intrusive, extractive or potentially damaging/polluting activity is required. Access onto the Solar PV Sites for maintenance of hardware and habitats will be required at regular intervals, but by small numbers of vehicles and personnel. The only exception to this is during replacement of panels and batteries as set out in **Chapter 3: The Scheme [EN010168/APP/6.1]**. Since the primary infrastructure (panel frames and BESS Area) would already have been built, there is a reduced risk of habitat degradation and associated dust

deposition or soil runoff through equipment replacement during the operation and maintenance phase. Likewise, the risk of accidental discharge of pollutants on the designated sites, resulting from the movement and refuelling of vehicles and plant, would be very low, and pollution control measures detailed in the **Outline OEMP [EN010168/APP/7.13]** will ensure the magnitude of any impact is low.

9.10.32 As the area proposed for BESS is close to existing ditches, there is a perceived risk of battery fire and subsequent discharge of chemicals into the local watercourse network and eventually into the Severn Estuary. This could potentially degrade the water quality of the SAC and SPA. Ecological buffers have been embedded into the design of the Scheme from an early stage (as shown in **Appendix 9-8 Schedule of Protective Ecological Buffers [EN010168/APP/6.3]**) in order to minimise the likelihood of adverse impacts arising during the operational phase. Additionally, embedded mitigation measures to minimise the likelihood and severity of battery fire have been incorporated into the Scheme. The measures to mitigate impacts in the event of a fire are detailed within the **Outline Battery Safety Management Plan (OBSMP) EN010168/APP/7.21]**. These are discussed in more detail in **Chapter 11: Hydrology, Flood Risk and Drainage [EN010168/APP/6.1]**, and **Chapter 19: Ground Conditions and Contamination [EN010168/APP/6.1]**.

9.10.33 Consequently, it is anticipated that **no significant adverse effects** will occur on the Severn Estuary SAC/SPA during the operation and maintenance phase.

9.10.34 An assessment on whether the Scheme will have a likely significant effect upon the Severn Estuary SAC and SPA is also considered further in the **HRA Report [EN010168/APP/7.10]** that accompanies the DCO application.

Severn Estuary Ramsar

Construction Phase

9.10.35 This designated site is outside of the Order Limits and lies 23.71 km from the Order Limits at the closest point. The Order Limits are sufficiently distant from the Ramsar site that no direct impacts will occur.

9.10.36 Watercourses within the Order Limits have a direct hydrological connection with the Severn Estuary Ramsar site via the River Avon, a tributary of the Severn. The River Avon itself is not present within the Order Limits, although sections of several smaller tributaries of the River Avon lie within the Solar PV Sites and the Cable Route Corridor. Following the course of the River Avon, the distance between the Order Limits and the Severn Estuary is substantial, with the Severn Estuary Ramsar sites being approximately 68 km downstream of the Order Limits at the closest point of the Cable Route Corridor. Watercourses at the Solar PV Sites are over 100 km from the Severn Estuary Ramsar site following the course of the River Avon.

9.10.37 As there is hydrological connectivity with the Severn Estuary via the River Avon, the habitats supported by the Severn Estuary Ramsar are potentially susceptible to short to medium-term degradation impacts during the construction phase, arising from discharge/deposition of sediments, dust and contaminants. although it is likely that any such impacts will be attenuated over such distances.

9.10.38 Embedded mitigation measures to minimise the likelihood and severity of pollution events, dust deposition and run-off arising during the construction and operation and maintenance phases, have been incorporated into the Scheme. The **Outline CEMP [EN010168/APP/7.12]** and **Outline EPMS [EN010168/APP/7.19]** detail how vehicles, plant and materials will be transported to the construction zone, as well as other standard environmental protection measures that will apply to the construction phase, such as dust suppression, pollution control measures and protection of adjacent habitats/watercourses from surface runoff. Given the above embedded mitigation measures, it is considered that significant impacts arising from discharge/deposition of sediments, dust and contaminants can be avoided/mitigated, and therefore **no significant adverse effects** on the Ramsar site through this potential impact pathway are anticipated.

9.10.39 Records of European eel, a qualifying species for the Severn Estuary Ramsar site are present from several places along the River Avon and its tributaries downstream of the Solar PV Sites. Compared to other migratory fish species, eels are highly mobile and are typically better able to navigate past potential barriers to fish migration such as weirs, hatches and sluice gates, which are frequently found within the River Avon and its tributaries.

9.10.40 Brown trout is frequently recorded within the upper River Avon and its tributaries in the vicinity of the Order Limits. While this is the same species as sea trout (a qualifying species for the Ramsar) the two forms of trout *Salmo trutta* have different life strategies and sea trout are the anadromous (sea-run) form which migrate from freshwater to saltwater. The upper Avon and its tributaries are considered likely to primarily support brown trout (which are ubiquitous along the River Avon and its tributaries) rather than sea trout, due to the numerous obstructions at the lower and middle reaches of the River Avon which are a considerable barrier to sea trout movement. However, correspondence with the EA has confirmed the presence of sea trout within the River Avon near Chippenham, downstream of the Order Limits. It is reasonable to consider sea trout to be present at suitable watercourses within the Order Limits.

9.10.41 River lamprey (a qualifying species of the Ramsar) are closely related to brook lamprey *Lampetra planeri*, with river lamprey being anadromous and brook lamprey being non-migratory. Brook lamprey has been recorded in the upper River Avon and lamprey young (ammocoetes) are often recorded. Although it is difficult to distinguish between brook and river lamprey when in the ammocoete

stage, these are typically considered to be brook lamprey in this location due to the considerable barriers to movement for migratory river lamprey along the lower and middle River Avon. It is reasonable to consider river lamprey populations associated with the Severn Estuary to be absent from the watercourses within the Order Limits.

9.10.42 No other migratory fish species cited as a qualifying feature for the Severn Estuary SAC or Ramsar site (namely salmon, sea lamprey, allis shad or twaite shad) have been recorded within watercourses within the Order Limits, or along the River Avon within 2 km of the Order Limits, and it is believed the distribution of these populations associated with the Severn Estuary does not extend upstream of the River Avon as far as the watercourses present at the Order Limits, due to the distance and significant barriers to migration between them and the estuary.

9.10.43 No surveys have been conducted for eels, sea trout or other fish species. However, all watercourses within the Order Limits have been appraised for their suitability for supporting migratory fish in their freshwater life stages. Five watercourses within the Order Limits, all of which are tributaries of the River Avon, are considered suitable to support eels and sea trout. These comprise the following:

- Gauze Brook. This stream flows through Lime Down D and also within the Cable Route Corridor. This watercourse is known to support brown trout, and eels have been recorded at a monitoring station circa 3.5 km downstream of the Order Limits east of Corston;
- Gabriel's Well. This stream flows through Lime Down E. No records of migratory fish exist from this watercourse;
- Pudding Brook. A section of this stream is present within the Cable Route Corridor. No records of migratory fish exist from this watercourse;
- Pudding Brook Tributary. A small stream to the north of Pudding Brook, converging with Pudding Brook just south of the A4 Bath Road. A section of this stream is present within the Cable Route Corridor; and
- Byde Mill Brook. A section of this stream is present within the Cable Route Corridor. This watercourse is known to support brown trout, and eels have been recorded at a monitoring station at Arnold's Mill Farm, circa 3.3 km downstream of the Order Limits.

9.10.44 These watercourses are all directly connected to known populations of eels and sea trout within the River Avon and, for the purposes of assessment, eels and sea trout have been assumed to be present in all of the above watercourses. Eel and sea trout populations within these watercourses are considered to form part of the meta-population supported by the Severn Estuary Ramsar and thus the watercourses can be assumed to represent FLL. The other migratory fish

species cited as a reason for designation for the Severn Estuary SAC and Ramsar sites are reasonably assumed to be absent from the above watercourses.

9.10.45 Watercourse elsewhere within the Order Limits are considered unsuitable for migratory fish associated with the Severn Estuary, due to being heavily modified, frequently dry or with a low flow and/or being isolated from other watercourses with poor connectivity to the River Avon and consequently the Severn Estuary.

9.10.46 Any required crossings (either for cables or access) have the potential to harm, cause mortality, or hinder or prevent migration of fish and therefore could have an impact on the ecological integrity of the Severn Estuary Ramsar.

9.10.47 The Scheme will avoid and minimise direct impacts upon watercourses by utilising existing crossings for access wherever possible. No new crossings for access are required at any of those watercourses identified as potentially suitable for eels or sea trout. A crossing schedule (within **ES Volume 3, Appendix 11-1: Flood Risk Assessment and Drainage Strategy Covering Report [EN010168/APP/6.3]**) has been prepared detailing the location and type of crossings proposed for both cables and access. It is possible that an existing vehicular crossing at Gabriel's Well may need to be improved to ensure it meets construction/operation and maintenance vehicle requirements (SM4 on the crossing schedule (**Appendix 11.1 [EN010168/APP/6.3]** refers)). Any new or improved crossing here will be an open-span structure, with no incursion into the channel ensuring no impediment to movement of fish (including eels and sea trout).

9.10.48 All crossings of watercourses suitable for migratory fish required for cable installation will adopt trenchless solutions (such as HDD) as specified in the crossing schedule (**Appendix 11.1 [EN010168/APP/6.3]** refers) This will avoid direct impacts associated with temporary damage and potential damning of watercourses to install cable trench and temporary access, which could directly harm fish and prevent movement up and down stream.

9.10.49 While this is far preferable to any cable installation which might involve any direct harm to the riverbeds themselves, a small risk remains of vibrations leading to noise, sediment mobilisation, or the emission of pollutants. Such impacts are likely to be felt in the short to medium term, depending on severity. The **Outline EPMS [EN010168/APP/7.19]** and **Outline CEMP [EN010168/APP/7.12]** provide precautionary working methods surrounding the installation of the cables and the minimisation of risks associated with HDD. This includes visual monitoring for discharge of sediments, minimum set backs for launch/reception pits, monitoring for vibrations, suitable depth settings and precautionary siting of entry and exit pits.

9.10.50 With the embedded mitigation measure in place, it is considered likely that impacts on the Severn Estuary, as well as species cited as a reason for designation (eel and sea trout) can be avoided. Overall a **neutral, non-significant effect** on the Severn Estuary is anticipated at the construction phase.

9.10.51 An assessment on whether the Scheme will have a likely significant effect upon the Severn Estuary Ramsar is also considered further in the **HRA Report [EN010168/APP/7.10]** that accompanies the DCO application.

Operation and Maintenance Phase Impacts

9.10.52 Given the distance from the Solar PV Sites and the minimal requirements for operation and maintenance phase works which could result in watercourse contamination or sediment mobilisation, it is anticipated that **no significant adverse effects** will occur on the Severn Estuary Ramsar via this pathway during the operation and maintenance phase due to any impacts being of negligible magnitude.

9.10.53 As the area proposed for BESS is close to existing ditches, there is a risk of battery fire and potentially the subsequent discharge of chemicals and other diffuse pollutants into the local watercourse network and eventually into the Severn Estuary. This could potentially degrade the water quality of the Ramsar site. Ecological buffers have been embedded into the design of the Scheme from an early stage, in order to minimise the likelihood of adverse impacts arising during the operation and maintenance phase. Additionally, embedded mitigation measures to minimise the likelihood and severity of battery fire have been incorporated into the Scheme, such as systems to close off attenuated surface water at the BESS Area and isolate it from the wider environment. The measures to mitigate impacts in the event of a fire are detailed within the **Outline Battery Safety Management Plan (OBSMP) EN010168/APP/7.21]**. These are discussed in more detail in **Chapter 11: Hydrology, Flood Risk and Drainage [EN010168/APP/6.1]**, and **Chapter 19: Ground Conditions and Contamination [EN010168/APP/6.1]**.

9.10.54 The potential for effects of anthropogenic EMFs on ecology is an emerging issue. It is feasible that EMFs emanating from electrical cables could impact eels where the cable route crosses suitable watercourses for the species, which utilise naturally generated EMFs for navigation, although to date there is very little evidence of significant behavioural changes from EMFs generated by electric cables. The size of generated fields is highly contingent on geometry, voltage and current, and it is considered that EMFs associated with the higher voltage Grid Connection Cables are more likely to risk impacts than those potentially emanating from interconnecting cables across the Scheme. All electrical cables associated within the Scheme are expected to be buried underground; buried cables typically have their electric fields fully attenuated by cable sheathing and the substrate under which they are buried. However,

magnetic fields and induced electric fields are not attenuated in this way, and there lies a risk of effects on fish species which are known to have evolved sensitivity to electric and/or magnetic fields, including eels.

9.10.55 There is therefore some risk of EMFs affecting migratory fish in the vicinity of the 400 Kv Grid Connection Cables, where they are required to cross tributaries of the River Avon and lie close to channel bed (typical cable depths are up to 2 m), which could hinder or prevent migration.

9.10.56 The likely significance of effects arising from EMFs on fish as a result of the Scheme are difficult to quantify. However, on a precautionary basis, impacts on eels and sea trout from EMFs could lead to an **adverse impact** on the Severn Estuary Ramsar which would be **significant at an International Level**

Harries Ground, Rodbourne SSSI

Construction Phase Impacts

9.10.57 This SSSI lies outside of the Order Limits and no direct impacts via habitat loss are anticipated during the construction phase. The SSSI is immediately adjacent to the Solar PV Sites (Lime Down E) and the Order Limits are within the Impact Risk Zone (IRZ) of the SSSI, indicating that the Scheme could potentially have adverse impacts. The proximity of the SSSI to the Scheme potentially makes it susceptible to short to medium-term degradation impacts during the construction phase, arising from discharge/deposition of sediments, dust and contaminants.

9.10.58 Ecological buffers have been embedded into the design of the Scheme from an early stage, in order to minimise the likelihood of adverse impacts arising on field boundary habitats and habitats lying beyond the Order Limits. A buffer zone of at least 15 m will be maintained between the SSSI boundary and any development. This is greater than the existing field margin which lies between the cultivated arable habitat and the SSSI boundary, which is approximately 5 m wide, and will help to prevent indirect impacts occurring.

9.10.59 Embedded mitigation measures to minimise the likelihood and severity of pollution events, dust deposition and run-off arising during the construction and operation and maintenance phases, have been incorporated into the Scheme. The **Outline CEMP [EN010168/APP/7.12]** and **Outline EPMS [EN010168/APP/7.19]** detail how vehicles, plant and materials will be transported to the construction zone, as well as other standard environmental protection measures that will apply to the construction phase, such as dust suppression, pollution control measures and protection of adjacent habitats/watercourses from surface runoff. Given the above embedded mitigation measures, it is considered that significant impacts arising from discharge/deposition of sediments, dust and contaminants can be

avoided/mitigated, and therefore **no significant adverse effects** on the above designated sites through this potential impact pathway are anticipated.

9.10.60 The SSSI is partly designated for a marsh fritillary butterfly population (last recorded at the SSSI in 2010). Land within Lime Down E is within the dispersal range of this species, which is typically between 500 m to 2 km. As such, loss of any suitable habitat present within Lime Down E could adversely impact the population and have detrimental effects on the integrity of the SSSI. The remainder of the Solar PV Sites (Lime Down A to D) are all over 2 km from the SSSI and are unlikely to support the population centred on the SSSI.

9.10.61 This species typically requires damp meadows, chalk hillsides or tussocky grassland in full sun, and is reliant on devil's-bit scabious *Succisa pratensis* as a foodplant. These habitats are poorly represented within Lime Down E, which primarily consists of arable farmland and grassland fields which are either short grazed or cut for silage. Devil's-bit scabious has not been recorded within botanical quadrats undertaken at Lime Down E or elsewhere at the Solar PV Sites, or incidentally during habitat surveys or species-specific surveys. The loss/modification of these habitats through installation of Solar PV Panels and associated infrastructure is not anticipated to have significant impacts on local marsh fritillary populations, including any associated within Harries Ground, Rodbourne SSSI.

9.10.62 Given that embedded mitigation measures will minimise any potential impacts on the above designated sites during the construction phase, it is currently considered that all reasonable steps will be taken to ensure that any impacts will be of low magnitude and **no significant adverse effects** will occur on this SSSI during the construction phase.

Operation and Maintenance Phase Impacts

9.10.63 Operationally, impacts on the SSSI are likely to be negligible, owing to the nature of the Scheme whereby no further construction activity or other intrusive, extractive or potentially damaging/polluting activity is required. Access onto the Solar PV Sites for maintenance of hardware and habitats will be required at regular intervals, but by small numbers of vehicles and personnel. The only exception to this is during replacement of panels and batteries as set out in **Chapter 3: The Scheme [EN010168/APP/6.1].** Since the primary infrastructure (panel frames and BESS Area) would already have been built, there is a reduced risk of habitat degradation and associated dust deposition or soil runoff through equipment replacement during the operation and maintenance phase. Likewise, the risk of accidental discharge of pollutants on the designated sites, resulting from the movement and refuelling of vehicles and plant, would be very low, and pollution control measures are detailed in the OEMP. It is anticipated that any impacts will be of negligible magnitude and **no significant adverse effects** will occur on the SSSI during the operation and maintenance phase.

9.10.64 The reversion of the arable fields which dominate the Solar PV Sites to grassland (for the lifetime of the Scheme) is considered likely to result in a significant beneficial effect in the extent and quality of grassland habitats within the Solar PV Sites which may provide supporting habitat for species associated with the SSSI and thus strengthen the ecological integrity of the designated site.

9.10.65 Prescriptions for the creation and management of all grassland within the Scheme (under panels and in buffer/ecological mitigation zones) are set out within the **Outline LEMP [EN010168/APP/7.18]** and will be finalised in the eventual detailed LEMP, with proposed habitats shown in the **Landscape and Ecology Mitigation Plan [EN010168/APP/6.2].** The general objective is to generate a simple mosaic of grassland habitats through the adoption of a number of different habitat management types revolving around the timing and frequency of cutting. Grassland management objectives range from creating tussocky grassland margins, to flowering meadow and grassland with scattered scrub. Further detail and refinement of the LEMP would be undertaken in consultation with key stakeholders including conservation organisations, site management companies and consultees, so as to ensure both the optimum biodiversity value and practicability/delivery of the prescriptions. Whilst the creation of these habitats can be expected to complement the habitats and species supported by the SSSI, it is not expected to result in significant beneficial effects on the SSSI overall, and a **neutral, non-significant residual effect** is anticipated.

Other National Statutory Designated Sites within 5 km of Scheme

9.10.66 The other national statutory designated sites considered in this preliminary assessment are as follows:

- Sutton Lane Meadows SSSI;
- Corston Quarry and Pond LNR; and
- Conygre Mead LNR.

Construction Phase Impacts

9.10.67 The above designated sites are all located outside of the Order Limits and are at least 1 km from any part of the Scheme. As a result, no direct impacts to habitats within these designated sites during the construction phase are anticipated. In addition, no indirect impacts during the construction phase, such as localised habitat fragmentation, noise, or habitat degradation arising from dust and silt deposition are anticipated.

9.10.68 Given the lack of impact pathways between the Scheme and the above designated sites following the implementation of the above embedded

mitigation measures, no additional construction phase mitigation measures are required, and **no significant effects** are anticipated.

Operation and Maintenance Phase Impacts

9.10.69 Operationally, impacts on these designated sites are likely to be negligible, owing to the nature of the Scheme and the distance between these designated sites and the Scheme (at least 1 km). No further construction activity or other intrusive, extractive or potentially damaging/polluting activity is required (other than replacement of panels and batteries as set out in **ES Volume 1, Chapter 3: The Scheme [EN010168/APP/6.1]**). Consequently, no operation and maintenance phase impacts on these designated sites are anticipated. Given the lack of impact pathways between the Scheme and the above designated sites, no additional operation and maintenance phase mitigation measures are required, and **no significant effects** are anticipated.

Non-Statutory Designated Sites within 300 m of Solar PV Sites

9.10.70 The local statutory and non-statutory designated sites considered in this preliminary assessment are as follows:

- Chalkenhams LWS;
- Brickyard Scrub LWS;
- Bincombe Wood LWS;
- Bradfield Wood LWS;
- Lord's Wood LWS;
- Rodbourne Plantation LWS;
- Seagry Wood and Oak Hill LWS;
- Surrendell Wood LWS;
- Bybrook Meadow LWS;
- Bristol Avon River LWS;
- Foxley Green LWS;
- West Park Wood – East LWS;
- West Park Wood – West LWS;
- Lower Easton Town Farm Meadows LWS;
- Lower Farm Meadows, Sherston LWS; and
- New House Farm Meadows LWS.

9.10.71 The above designated sites are all located within 300 m of the Solar PV Sites.

Construction Phase Impacts

9.10.72 No direct impacts on habitats present within the above designated sites are anticipated during the construction phase.

9.10.73 The proximity of the above designated sites to the Scheme (within a maximum of 300 m) potentially makes them susceptible to short to medium-term degradation impacts during the construction phase, arising from discharge/deposition of sediments, dust and contaminants. This is particularly

true of LWSs adjacent to the Solar PV Sites, as well as Bristol Avon LWS which is hydrologically connected via tributary watercourses which flow through the Solar PV Sites.

9.10.74 Chalkenhams LWS and Brickyard Scrubs LWS were both removed from the Order Limits as part of early design process. Ecological buffers have been incorporated into the design of the Scheme from an early stage. These include buffers from any parcels of woodland, including those designated as LWSs. Given that Bincombe Wood LWS, Bradfield Wood LWS, Lord's Wood LWS, Rodbourne Plantation LWS, Seagry Wood and Oak Hill LWS, and Surrendell Wood LWS are all located immediately adjacent to the Solar PV Sites and are designated for their ancient woodland habitats, these will all be buffered by a minimum of 15 m from development in order to minimise the likelihood of adverse impacts during the construction phase of the Scheme. The only exception to this is where an existing well-established hardstanding farm access track runs adjacent to the northern boundary of Rodborne Plantation LWS, to the south of fields E2 and E3 in Lime Down E. The continued use of an existing well-established track by construction traffic is not anticipated to result in additional risk of damage or root compaction to the trees on the outer edge of the LWS, and is preferable to creation of a new track which would likely result in additional hedgerow loss.

9.10.75 The **Outline CEMP [EN010168/APP/7.12]**, **Outline Construction Traffic Management Plan (Outline CTMP) [EN010168/APP/7.22]**, and **Outline EPMS [EN010168/APP/7.19]** detail how vehicles, plant and materials will be transported to the construction zone, as well as other standard environmental protection measures that will apply to the construction phase, such as dust suppression, pollution control measures and protection of adjacent habitats/watercourses from surface runoff. Given the above embedded mitigation measures, it is considered that significant impacts arising from discharge/deposition of sediments, dust and contaminants can be avoided/mitigated, and therefore **no significant adverse effects** on the above designated sites through this potential impact pathway are anticipated.

9.10.76 The above designated sites may also be susceptible to habitat fragmentation impacts through the creation of new accesses in hedgerows within the Order Limits, which contribute to habitat connectivity between these designated sites and within the local landscape.

9.10.77 The design of the Scheme has carefully considered the locations of existing road accesses and field entrances and utilised these wherever possible to avoid unnecessary hedgerow removal during the construction phase. Where it has not been possible to utilise existing access and new accesses are proposed, the smallest practical access gap permissible will be used. These are anticipated to measure no more than a typical agricultural access at 3.5-6 m, and therefore these new accesses are highly unlikely to significantly impact the connectivity of

the local hedgerow network or result in habitat fragmentation impacts which significantly affect the status of the above designated sites.

9.10.78 Given that embedded mitigation measures will aim to minimise any potential impacts on the above designated sites, it is considered that all reasonable steps will be taken to ensure that any fragmentation impacts will be of low magnitude and **no significant adverse effects** will occur on these sites during the construction phase. No additional mitigation measures (beyond those embedded in the design of the Scheme) are required.

Operation and Maintenance Phase Impacts

9.10.79 Operationally, impacts on these designated sites are likely to be negligible, owing to the nature of the Scheme whereby no further construction activity or other intrusive, extractive or potentially damaging/polluting activity is required. Access onto the Sites for maintenance of hardware and habitats will be required at regular intervals, but by small numbers of vehicles and personnel. The only exception to this is during replacement of panels and batteries as set out in **Chapter 3:The Scheme [EN010168/APP/6.1]**. Since the primary infrastructure (panel frames and BESS Area) would already have been built, there is a reduced risk of habitat degradation and associated dust deposition or soil runoff through equipment replacement during the operation and maintenance phase. Likewise, the risk of accidental discharge of pollutants on the designated sites, resulting from the movement and refuelling of vehicles and plant, would be very low, and pollution control measures are detailed in the OEMP.

9.10.80 **No significant adverse effects** upon these sites are anticipated during the operation and maintenance phase as any impact would be of negligible magnitude. No additional mitigation measures (beyond those embedded in the design of the Scheme) are required, and **no residual effects** are anticipated.

Enhancement Measures

9.10.81 Habitat creation measures associated with a Scheme of this scale have the potential to contribute to and strengthen the connectivity between the above designated sites and the local landscape. This is particularly true of the several nearby LWSs designated for woodland habitats, where stronger connective links can achieved through the provision of proposed new hedgerows, tree and woodland planting in the vicinity of the above designated sites. In addition other proposed habitats such the creation of areas of species-rich grassland and scrub planting within the Solar PV Sites, may provide ecological ‘stepping stones’ for various species within the local, largely arable landscape. These enhancement measures will be secured via implementation of the **Outline LEMP [EN010168/APP/7.18]**.

Non-Statutory Designated Sites between 300 m and 2km of the Solar PV Sites

9.10.82 The non-statutory designated sites considered in this preliminary assessment are as follows:

- Easton Grey Meadow 2 LWS;
- Easton Grey Meadow 1 LWS;
- Kingway Barn Meadows LWS;
- Townfield Farm Meadows LWS;
- Brook House Meadow, Luckington LWS;
- Manor Farm Meadows, Sherston LWS;
- Cowage Grove LWS;
- Tyning and Tanhouse Meadows LWS;
- Carrier's Farm Meadows, Sherston LWS;
- Luckington Meadows LWS;
- Foxley Grove LWS;
- Gauzebrook Meadows LWS;
- Corston Quarry and Pond LWS;
- Ell Wood LWS;
- Foxley Estate – Riverside Pasture LWS;
- Cranhill Wood LWS;
- North Draycot Park LWS;
- Hyam Wood LWS;
- Littleton Drew Verge;
- Stock Wood LWS; and
- Oldland's Wood LWS.

Construction Phase Impacts

9.10.83 The above designated sites are all located outside of the Order Limits and are at least 300 m from the Solar PV Sites, with the closest being 400 m and the furthest being 1.92 km away. As a result, no direct impacts to habitats within these designated sites during the construction phase are anticipated. In addition, no indirect impacts during the construction phase, such as localised habitat fragmentation, noise, or habitat degradation arising from dust and silt deposition are anticipated.

9.10.84 There is potential for chemical spills and surface runoff into watercourses during the construction phase, which may subsequently degrade the habitats present within these sites, should they be hydrologically connected to the watercourses present within and adjacent to the Scheme. However, embedded mitigation measures are incorporated into the **Outline CEMP [EN010168/APP/7.12]** to manage run-off and chemical spillages during the construction phase and ensure any impact is of negligible magnitude.

9.10.85 Given the lack of impact pathways between the Scheme and the above designated sites, no additional construction phase mitigation measures are required, and **no significant effects** are anticipated.

Operation and Maintenance Phase Impacts

9.10.86 Operationally, impacts on these designated sites are likely to be negligible, owing to the nature of the Scheme whereby no further construction activity or other intrusive, extractive or potentially damaging/polluting activity is required. Given the distance between these designated sites and the Solar PV Sites (at least 400 m), as well as the low levels of activity associated with the operation and maintenance phase (even in the case of the replacement of panels and batteries), no operation and maintenance phase impacts on these designated sites are anticipated.

9.10.87 However, as the area proposed for BESS is close to existing ditches, there is a perceived risk of battery fire and subsequent discharge of chemicals into the local watercourse network and which could potentially degrade habitat quality contained within these designated sites where hydrological connections exist. Ecological buffers have been embedded into the design of the Scheme from an early stage (as shown in **Appendix 9-8 Schedule of Protective Ecological Buffers [EN010168/APP/6.3]**) in order to minimise the likelihood of adverse impacts arising during the operational phase. Additionally, embedded mitigation measures to minimise the likelihood and severity of battery fire have been incorporated into the Scheme. The measures to mitigate impacts in the event of a fire are detailed within the **Outline Battery Safety Management Plan**

(OBSMP) EN010168/APP/7.21]. These are discussed in more detail in **Chapter 11: Hydrology, Flood Risk and Drainage [EN010168/APP/6.1]**, and **Chapter 19: Ground Conditions and Contamination [EN010168/APP/6.1]**.

9.10.88 No additional operation and maintenance phase mitigation measures are required, and **no significant effects** are anticipated.

Habitats

Arable Field Margins

Construction Phase Impacts

9.10.89 The implementation of extensive buffer zones which almost universally measure wider than current arable field margins (which are typically 1-5 m wide and up to 12 m wide) will minimise the loss of arable field margin habitat as a whole. Ecological buffers being applied to the design of the Scheme are listed in Section 9.9 and shown in **ES Volume 2 Figure 3-4: Landscape and Ecology Mitigation Plan [EN010168/APP/6.2]**. Although arable field margins will not be buffered specifically, these habitats will likely fall within the buffer zones of other habitats (such as 15 m buffers from hedgerows) and will themselves be retained and protected during the construction phase wherever feasible.

9.10.90 Although some areas of existing arable field margin will be lost during the construction phase for new access, the Scheme has been designed to ensure that in general marginal habitats at the peripheries of fields will be retained and protected during the construction phase, and therefore any losses are considered likely to be minor. These would be more than adequately compensated for through the retention of wider undeveloped buffer zones. Areas of arable field margin of the type 'game bird mix' (i.e. those sown with plants to provide cover and food for game birds) occasionally feature as larger blocks of habitat extending further into the field and will be lost.

9.10.91 Existing arable field margins may significantly change in character following the cessation of arable farming within the wider field, as well as through a change in management regime associated with the land use changing from arable to permanent grassland. For the purposes of the **Biodiversity Net Gain Assessment Report [EN010168/APP/7.8],** arable field margins have generally been considered to be 'lost' within the Solar PV Sites, given that the relevant habitat definition is likely to change from being arable field margin categories (by definition lying on the edge of an arable field), to permanent grassland categories, such as modified grassland or other neutral grassland. However, there is a wide overlap between these habitat categories, and the 'loss' of arable field margins is not considered to constitute a significant adverse effect,

given that these areas will generally be retained as grassland and enhanced through the Scheme, and therefore still have the same ecological contribution.

9.10.92 Given that the Scheme has been designed to ensure that no net loss of arable field margin habitat occurs across the entirety of the Order Limits (in accordance with the Statutory BNG Metric), it is anticipated that the Scheme will result in **no significant adverse effects** on the extent or quality of arable field margins during the construction phase.

Operation and Maintenance Phase Impacts

9.10.93 Whilst most of the arable field margins would not bound 'arable habitat' following construction of the Scheme, areas of grassland around the peripheries of the Solar PV Sites which are not subject to intensive management would still represent the same or similar characteristic habitat type of grassy arable field margins, and provide the same habitat function for the mammal, bird and invertebrate species which it supports.

9.10.94 While arable field margins and other habitats within the retained buffer zones would benefit from cessation of agricultural inputs and sprays, they would be at risk of long-term degradation through eventual succession to scrub without periodic management. Any arable margin which is retained during the construction phase, including grassland strips at the edge of the fields, could be at risk from a reduction in habitat quality through lack of periodic management.

9.10.95 The **Outline LEMP [EN010168/APP/7.18]** implemented during the operation and maintenance phase will aim to maximise the value of these marginal areas for biodiversity through favourable cutting/grazing regimes, and therefore the Scheme is anticipated to support habitats of higher biodiversity value during the operation and maintenance phase than at baseline. Taking into account the measures to be set out in the LEMP, **no significant adverse effects** on arable field margin extent or quality are anticipated.

9.10.96 Prescriptions for the creation and management of all grassland within the Scheme (under panels and in buffer/ecological mitigation zones) are set out within the **Outline LEMP [EN010168/APP/7.18]**, and will be finalised in the eventual detailed LEMP. The general objective is to generate a simple mosaic of grassland habitats through the adoption of a number of different habitat management types revolving around the timing and frequency of cutting. Grassland management objectives range from creating tussocky grassland margins, to flowering meadow and grassland with scattered scrub. Other habitats for consideration would also include periodic cultivation of land outside of the Solar PV Panels (but within the Order Limits) to provide suitable conditions for arable weed species to flourish, for instance at the western part of

field B6 as shown in **ES Volume 2, Figure 3-4: Landscape and Ecology Mitigation Plan [EN010168/APP/6.2].** Further detail and refinement of the LEMP would be undertaken in consultation with key stakeholders including conservation organizations, site management companies and consultees, so as to ensure both the optimum biodiversity value and practicability/delivery of the prescriptions.

9.10.97 The reversion of the arable fields which dominate the Solar PV Sites to grassland (for the lifetime of the Scheme) is considered likely to result in a significant beneficial effect in the extent and quality of arable margin habitat (of grassland habitat types described above) within the Solar PV Sites. However, the significance of this effects is assessed under 'Other Neutral Grassland' subheading below to avoid double counting of any beneficial impact. Other neutral grassland is likely to be the habitat type most representative of the grassland to be created and/or enhanced by the Scheme, as grassland for the most part will not be present around the margins of arable fields within the operational Scheme, with the exception of areas set aside for continued cultivation such as skylark mitigation areas (see section 9.12). A **neutral, non-significant** effect is therefore anticipated for arable field margin habitat

Other Neutral Grassland

Construction Phase Impacts

9.10.98 Although some areas of existing other neutral grassland may be lost during the construction phase, the Scheme has been designed to ensure that existing other neutral grassland is retained wherever practicable, with other neutral grassland habitat present at field margins to be protected via implementation of buffer zones. It is currently anticipated that 7.65 ha of the total 15.69 ha of other neutral grassland within the Solar PV Sites will be lost as a result of the Scheme, with the remaining either being retained or enhanced through sensitive management regimes and other interventions.

9.10.99 In addition, a further 171.07 ha of other neutral grassland is anticipated to be created through the Scheme through the seeding and sensitive management of new areas of grassland. It is anticipated that all other neutral grassland will be located outside of the array fencing, and will principally be located within buffer zones adjacent to hedgerows, and within entire fields that have been designated for wildflower meadow creation as an ecological mitigation measure. Assuming the establishment of the targeted habitats and successful implementation of the management prescriptions in the **Outline LEMP [EN010168/APP/7.18]**, it is anticipated that the Scheme would result in a net gain in the extent of other neutral grassland within the Order Limits.

9.10.100 A proportion of the total extent of up to 15.44 ha of other neutral grassland within the Cable Route Corridor(depending on the final design and route decided upon), can be expected to be temporarily lost within the 25 m working width, but will be reinstated on completion of cabling works. No Temporary Construction Compounds for the Cable Route Corridor are proposed to be sited on existing areas of other neutral grassland.

9.10.101 It is anticipated that the Scheme will result in **no significant adverse effects** on the extent or quality of other neutral grassland during the construction phase due to any impacts being temporary and of low magnitude.

Operation and Maintenance Phase Impacts

9.10.102 Operationally, access onto the Sites for maintenance of hardware and habitats will be required at regular intervals, but by typically small numbers of vehicles and personnel. The only time when this will be increased is during replacement of panels and batteries, understood to be once for solar panels and up to five times for batteries, respectively, during the lifetime of the Scheme.

9.10.103 Consideration has been given to potential impacts on retained and newly created habitats, including other neutral grassland, as a result of cleaning of panels. As described in **Chapter 3: The Scheme [EN010168/APP/6.1]**, in the UK solar PV panels are largely self-cleaning from rainfall, and whilst it is not possible to state precise cleaning requirements at this stage, the solar PV panels would be cleaned using deionised water only, within no chemical cleaning products used. If required, panels would be cleaned no more frequently than once every two years under the worst case scenario. The avoidance of chemical use and likely infrequent intervals of cleaning means that there is a negligible likelihood of effects potentially arising from this procedure, such as degradation of habitat through chemical pollution or impacts to hydrological conditions at ground level.

9.10.104 Embedded mitigation measures will ensure that the degradation through succession of grassland habitats over the operation and maintenance phase is avoided. No additional operation and maintenance phase mitigation measures in relation to grassland habitats are required.

9.10.105 The extent of grassland present within the Order Limits will significantly increase, following the reversion of arable land within panelled areas to grassland habitats. Requirements set out within the **Outline LEMP** that will be implemented during the operation and maintenance phase will aim to maximise the value of these grasslands for biodiversity through favourable management regimes, and therefore the Scheme is anticipated to support habitats of higher biodiversity value during the operation and maintenance phase than at baseline.

Taking into account the measures set out in the **Outline LEMP [EN010168/APP/7.18]**, **no significant adverse effects** on other neutral grassland extent or quality are anticipated.

9.10.106 Prescriptions for the creation and management of all grassland within the Scheme (under panels and in buffer/ecological mitigation zones) would be set out within the eventual finalised LEMP, which will be substantially in accordance with the **Outline LEMP [EN010168/APP/7.18]**. The general objective would be to generate a simple mosaic of grassland habitats through the adoption of a number of different habitat management types revolving around the timing and frequency of cutting. Grassland management objectives range from to tussocky grassland, flowering meadow and ruderal-mix grassland. Operational management of grassland areas may also include conservation-grazed pasture, which would target similar outcomes for biodiversity as grasslands managed through low-intensity cutting regimes, although this assessment assumes grazing would not occur during operation and maintenance of the Scheme. Further detail and refinement of the LEMP would be undertaken in consultation with key stakeholders including conservation organizations, site management companies and consultees, so as to ensure both the optimum biodiversity value and practicability/delivery of the prescriptions.

9.10.107 The reversion of the arable fields which currently dominate the Solar PV Sites to grassland (for the lifetime of the Scheme) which is managed via the requirements outlined in the **Outline LEMP [EN010168/APP/7.18]** to maximise value for biodiversity is considered likely to result in a positive impact of medium magnitude on the extent of other neutral grassland within the Order Limits and an overall **significant beneficial effect**, which would likely be significant at a **Local level.**

Traditional Orchard

Construction Phase Impacts

9.10.108 A small quantum (0.1 ha) of this habitat is present within the Cable Route Corridor. This habitat is considered to be a remnant fragment of a once more characteristic orchard, with the parcel in which it sits comprising mown amenity lawn associated with an adjacent residential property. It is currently only considered to represent Traditional Orchard habitat on account of it featuring three remnant fruit trees, two of which are outside of the Order Limits and will not be impacted. The grassland in which the fruit trees are sited is not characteristic of Traditional Orchard in that it is currently managed via frequent mowing, maintaining a short sward low in both species and structural diversity.

Temporary removal followed by reinstatement of this grassland will not have a significant impact on this habitat.

9.10.109 It is possible that the single fruit tree within the Cable Route Corridor where it intersects the Traditional Orchard parcel will be removed, depending on the micro-siting of the works. Should this occur, it would lead to a further deterioration of this habitat, **significant adverse effect at a Site level only**, as only one of the three existing orchard trees would be impacted.

Operation and Maintenance Phase Impacts

9.10.110 On completion of works within the Cable Route Corridor, cables will remain undisturbed for the life of the Scheme unless they become damaged. Where damage occurs, cables will be replaced by opening the ground and pulling the cable through agreed extraction points which can be sited away from sensitive ecological features including Traditional Orchard habitat. Therefore, no significant impacts upon this habitat are anticipated during the operation and maintenance phase. No additional mitigation measures are required, and **no residual effects are anticipated**.

Woodland

Construction Phase Impacts

9.10.111 No direct loss of woodland will occur at within the Solar PV Sites. Protective, development-free buffers of a minimum of 15 m from all woodland within or adjacent to the Solar PV Sites have been designed into the Scheme and will be demarcated by protective fencing prior to commencement of construction as secured by the **Outline EPMS [EN010168/APP/7.19]**, so that accidental physical damage (such as direct contact with vehicles or root compaction) can be avoided. The buffer distances would be observed thereafter for the lifetime of the Scheme. There are two exceptions to this at the Solar PV Sites, one of which is where an existing well-established hardstanding farm access track runs adjacent to the northern boundary of Rodborne Plantation LWS, to the south of fields E2 and E3 in Lime Down E, which will be used for construction access. Similarly, construction access will also utilise an existing hardstanding access track running along the northern boundary of a woodland block to the south of field C22.The continued use of existing, well-established hardstanding tracks by construction traffic is not anticipated to result in additional risk of damage or root compaction to the trees on the outer edge of the woodlands here, and is preferable to creation of a new track which would likely result in additional habitat loss.

9.10.112 Woodland is present as relatively small blocks in several places within the Cable Route Corridor. Where the cable installation works intersect these woodlands, construction will adopt trenchless technologies (e.g. HDD) to avoid loss of woodland at these locations. In all such locations, temporary reception/launch pits for HDD will be sited at least 10 m from the woodland edge or greater if Root Protection Areas dictate, as specified in the **Outline EPMS [EN010168/APP/7.19]**. Further details on the assessment of impacts mitigation measures for trees present within woodland within the Cable Route Corridor are presented in **ES Volume 1, Chapter 10: Arboriculture [EN010168/APP/6.1]** with non-significant residual impacts anticipated.

9.10.113 Broadleaved plantation woodlands fringe the northern and northwestern areas of the Existing National Grid Melksham Substation and construction access will pass through these woodlands. However, there are well established hardstanding access tracks already present through this woodland for access to the substation, and construction access will make use of these existing access points (**ES Volume 1, Chapter 13 Transport and Access [EN010168/APP/6.1]** refers) and no loss of this woodland is anticipated.

9.10.114 Woodland in close proximity to the Solar PV Sites, haul routes and cable installation works, would remain sensitive to degradation through accidental pollution events and dust deposition. Construction activities could also lead to a small amount of noise and possibly light disturbance to species within adjacent woodland. However, this effect would be temporary and would likely only affect the outer margins of the woodland.

9.10.115 It should be noted that a certain amount of noise disturbance, dust deposition and run off would also be expected as a result of routine agricultural activities, and as such these impacts are likely to be similar to the current baseline conditions.

9.10.116 Measures within the **Outline CEMP [EN010168/APP/7.12]** and **Outline EPMS [EN010168/APP/7.19]**, covering the protection of woodland at boundaries, working in extremely dry or wet weather, storage and use of fuels and chemicals, and the movement of vehicles and plant, will be secured as part of the DCO, and will reduce the likelihood of these impacts occurring.

Operation and Maintenance Phase Impacts

9.10.117 The Scheme has been designed to account for shading effects of woodland when considering the placement of panels. As such, there should be no conflict between the efficiency of energy generation and shading from woodland during operation and maintenance.

9.10.118 Operationally, access onto the Sites for maintenance of hardware and habitats will be required at regular intervals, but by typically small numbers of vehicles and personnel. The only time when this will be increased is during replacement of panels and batteries, understood to be approximately once for solar panels and up to five times for batteries, respectively, during the lifetime of the Scheme. However, movement of vehicles close to the woodland edges is not anticipated; this will be imposed by sufficient protected buffer zones and the restriction of vehicles to demarcated tracks wherever possible.

9.10.119 Due to the largely passive nature of the operational Scheme, impacts on woodland during operation and maintenance are not anticipated. A finalised LEMP, which will be substantially in accordance with the **Outline LEMP [EN010168/APP/7.18],** will be implemented to delineate each retained and protected habitat and set out the different management practices to be carried out within them. Woodland management is not anticipated to be necessary, although periodic pruning or trimming back of self-seeded boundary vegetation may be required in order to keep the arrays and maintenance tracks clear of tall, woody vegetation.

9.10.120 Given that embedded mitigation measures will be incorporated into the Scheme to avoid any impacts of more than a negligible magnitude on woodland during the operation and maintenance phase, no additional mitigation measures are considered necessary, and **no significant adverse effects** are anticipated.

9.10.121 Woodland/tree planting has been incorporated into the Scheme, which will result in the creation of approximately 11.37 ha of new native broadleaved woodland within the Order Limits, as well as considerable levels of tree planting elsewhere within the Scheme. Once established, this level of woodland planting will result in a significant beneficial effect on the extent of woodland within the Order Limits, which would by extension contribute to the connectivity of woodland stands and proliferation of Green Infrastructure across the local landscape. Locations for planting have been directed by the need for landscaping and visual impact mitigation, although have also been influenced by where gains from connecting habitat parcels are clearest.

9.10.122 Woodland habitats are likely currently subject to spray drift from the use of pesticides and herbicides as part of intensive arable farming practices. The cessation of these processes is likely to be of benefit of a medium magnitude to the woodland habitat edges during the life span of the Scheme, encouraging the proliferation of woodland ground flora.

9.10.123 The proposed woodland and tree planting, in combination with the cessation of intensive arable farming practices adjacent to the woodland identified within the

Solar PV Sites, would likely constitute a **significant long-term beneficial effect at the Local level**.

Rural Trees, and Ancient/Veteran Trees

9.10.124 Please refer to **Chapter 10: Arboriculture [EN010168/APP/6.1]** for the full assessment details on trees (including ancient and veteran trees).

9.10.125 Details of potential impacts on roosting bats and nesting birds in trees are provided in 'Roosting Bats' and 'Breeding Birds – Other Species' respectively below.

9.10.126 A full BNG assessment has been conducted and submitted with the **ES provided in Biodiversity Net Gain Assessment Report [EN010168/APP/7.8]** and **Biodiversity Net Gain Assessment Statutory Biodiversity Metric Calculation [EN010168/APP/7.9]**, taking account of all habitat trading rules and the latest Statutory Biodiversity Metric requirements. As ancient and veteran trees are considered irreplaceable habitats, the retention of these trees has been designed into the Scheme, and these features will be protected throughout the lifetime of the Scheme through the implementation of protective fencing during the construction phase and the retention of buffers during the operational phase. It is also currently proposed that all individual in-field mature trees will be retained. Any losses of individual trees within boundary habitats will be fully compensated for through the enhancement of existing habitats and the creation of new habitats, including native hedgerow and tree planting and woodland creation.

Ponds

Construction Phase Impacts

9.10.127 No ponds are anticipated to be directly impacted through habitat loss or fragmentation as a result of the Scheme. A minimum of 10 m development free buffer from all ponds will also be observed ensuring the ponds and immediately surrounding habitat will remain unimpacted.

9.10.128 There is a risk of degradation of the retained pond habitats through dust deposition, accidental pollution events and run off during construction activities. This could damage the habitat within and surrounding the ponds as well as affecting the species which inhabit them. The adoption and implementation of the **Outline CEMP [EN010168/APP/7.12]** and **Outline EPMS [EN010168/APP/7.19]** and their measures to avoid and minimise the risk of impacts from damage, run-off and pollution will be crucial to avoiding impacts on ponds.

9.10.129 When considering the above embedded mitigation measures that will be adopted through the **Outline CEMP [EN010168/APP/7.12]** and **Outline EPMS [EN010168/APP/7.19]**, it is considered that any impacts to ponds above a low magnitude of impact during the construction phase could likely be avoided. As a result, no additional mitigation measures for ponds during the construction phase are required, and **no significant effects** are anticipated.

Operation and Maintenance Phase Impacts

9.10.130 There is a risk of degradation of the retained pond habitats through dust deposition, accidental pollution events and run off doing construction activities. This could damage the habitat within and surrounding the ponds as well as affecting the species which inhabit them. The adoption and implementation of the **Outline CEMP [EN010168/APP/7.12]** and **Outline EPMS [EN010168/APP/7.19]** and its measures to avoid and minimise the risk of impacts from damage, run-off and pollution will be crucial to avoiding impacts on ponds.

9.10.131 The cessation of agricultural practices in close proximity to the ponds is likely to lead to an improvement in the water quality within retained ponds.

9.10.132 When considering the above embedded mitigation measures that will be adopted through the **Outline CEMP [EN010168/APP/7.12]** and **Outline EPMS [EN010168/APP/7.19]**, it is considered that impacts to ponds during the construction phase could likely be avoided. As a result, **no significant effects** are anticipated. No additional mitigation measures for ponds during the construction phase are required, and **no residual effects** are anticipated.

Enhancement Measures

9.10.133 Opportunities to create new areas of standing water within the Scheme have been explored, with ten proposed locations for pond creation being outlined on the **Landscape and Ecology Mitigation Plan [EN010168/APP/6.2]**. The indicative locations have been based on topographical information and historic mapping, with nine of the indicative locations being located at historic farm ponds which have been filled in previously (also known as ‘ghost’ ponds), and are generally based in close proximity to watercourses or in other habitats which are known to be damp/wet. Any ponds created would be constructed in accordance with the prescriptions detailed in the **Outline LEMP [EN010168/APP/7.18]**, and thereafter would be managed for the benefit of wildlife for the duration of the Scheme. These indicative pond locations will be located outside of the development area and within other habitats of value for wildlife, such as permanent grassland.

9.10.134 The creation of new ponds would likely result in a **significant beneficial effect** on the extent of standing water habitat within the Scheme, which would likely be significant at a **Site to Local level,** depending on how successfully the ponds establish.

Hedgerows and Lines of Trees

Construction Phase Impacts

9.10.135 Within the Solar PV Sites, protective, development-free buffers of at least 15 m from all hedgerows and lines of trees have been designed into the Scheme, to be implemented during the construction phase and observed for the life of the Scheme thereafter. A small number of exceptions to the 15 m buffer will occur for feasibility and practicality reasons. For example, a Temporary Construction Compound will be sited within 15 m of the hedgerows in the north-east corner of field E6. However, this compound will be sited on an existing area of crushed aggregate currently used for farm storage, and thus will exploit an existing area of habitat of negligible value for wildlife, and would be unlikely to have significant detrimental impacts on the adjacent hedgerows when compared to current conditions.

9.10.136 The implementation of these buffers will help to avoid any accidental damage or degradation during the construction phase. Measures covering the protection of hedgerows, woodland and trees at boundaries, working in extremely dry or wet weather, storage and use of fuels and chemicals and the movement of vehicles and plant, have been incorporated into the **Outline EPMS [EN010168/APP/7.19]**.

9.10.137 The potential for loss of hedgerows and trees within the Solar PV Sites is limited as existing hedgerow gaps have been utilised for access points wherever possible during both construction and operation and maintenance. A small number of new, permanent (for the duration of the Scheme) gaps need to be created to facilitate access to particular fields/parts of the Solar PV Sites including providing access for Abnormal Indivisible Loads (AIL), totalling approximately 327 m in length. In the context of the hedgerow network across the Solar PV Sites (which is 73.44 km), this loss will be proportionately very small (far less than 1 %), and new planting will be implemented to ensure that any losses are compensated for. A Hedgerow Removal Plan showing anticipated permanent hedgerow losses is provided in the **Outline EPMS [EN10168/APP/7.19]**. Vehicle swept path analysis used to calculate required hedgerow losses at access points from the existing highways network were taken from detailed drawings of each proposed access provided in **ES Volume 3, Appendix 13-1: Transport Assessment [EN010168/APP/6.3].**

9.10.138 The potential for loss of hedgerows and trees associated with construction within the Cable Route Corridor is greater, with larger gaps (typically 12 m wide) needed for cable trenches and haul routes, although again existing hedgerow gaps have been utilised for access points wherever possible. A number of temporary access gaps in hedgerows will also need to be created to provide access to working areas from the road network, requiring hedgerow removal of between 0 m (where sufficient gaps already exist and will be utilised) up to 18 m. Hedgerow losses within the Cable Route Corridor are calculated to total up to 1.43 km in length, although in the context of the hedgerow network within the Order Limits of the Cable Route Corridor (which is 41.51 km), this loss will be proportionately small (less than 3.5 %). This is based on a reasonable worst case scenario of up to 121 potential new crossings required for cable installation following an approximate central route through the Cable Route Corridor, and does not take into account any existing gaps which will be used wherever possible when installing cables. On completion of construction work within the Cable Route Corridor, all habitats, including hedgerows, will be reinstated ensuring there is no overall loss of hedgerow habitat with the Cable Route Corridor. The key difference between Cable Route Corridor hedgerow impacts and Solar PV Sites hedgerow impacts is that hedgerow losses will be temporary, being able to be reinstated once the trench is backfilled. Consequently, such impacts are considered to be reversible, with mitigation reducing timescales from the long term replacement (through natural succession) to short to medium term (through replanting).A Hedgerow Removal Plan showing anticipated temporary hedgerow losses is provided in the **Outline EPMS [EN10168/APP/7.19]**. However, as there will be a time lag between removal of hedgerows and the subsequent establishment and development of hedgerows to achieve comparable functionality and value to bats and other species, there will be a consequent reduction in quality and integrity of hedgerows within the Cable Route Corridor. This will be a short to medium term impact and has the potential to result in **significant adverse effects** on hedgerow at the Local level.

Operation and Maintenance Phase Impacts

9.10.139 As with woodlands, the largely passive nature of the operational Scheme means impacts on hedgerows and trees are not anticipated, particularly when considering all ecological buffers which will be implemented and observed for the lifetime of the Scheme. As a result, **no significant adverse effects** on hedgerows and trees are anticipated during the operational phase, and no additional mitigation measures are required.

9.10.140 Following their establishment, it is anticipated that the Scheme will result in the creation of approximately 15.74 km of new hedgerow, and approximately 9.43

km of lines of trees. Details of hedgerow losses and gains are provided within the **Biodiversity Net Gain Assessment Report [EN010168/APP/7.8]**

9.10.141 Management measures are prescribed within the **Outline LEMP [EN010168/APP/7.18]** which have the aim of maximising the biodiversity value of retained and newly planted hedgerows within the Solar PV Sites in the long term. This will include rotational cutting of the hedgerows to ensure a diversity of habitats and the availability of foraging resources (such as berries) throughout the year, as well as the trimming back of self-seeded boundary vegetation, in order to keep the arrays and maintenance tracks clear of tall, woody vegetation. Additionally, the **Outline LEMP [EN010168/APP/7.18]** specifies the maintenance of hedgerows at a minimum height of 3-4 m, as this has been demonstrated to be important for promoting the biodiversity value of hedgerows, as well as providing sufficient screening.

9.10.142 Enhancement through the planting of new trees and hedgerows at boundaries is proposed and will focus on the gapping up of currently defunct hedgerows, creation of new hedgerows at boundaries where none exist; and planting where landscape and visual impact mitigation is required. Such new hedgerows will be native, locally-appropriate and species-rich. Further details of newly planted hedgerows, as well as the management of existing hedgerows, are provided within the **Outline LEMP [EN010168/APP/7.18]**.

9.10.143 The cessation of intensive arable farming and use of pesticides and fertilisers is likely to be of benefit to the hedgerows and trees at the Solar PV Sites during the lifespan of the Scheme, encouraging the diversification of hedgerow ground flora.

9.10.144 Following the establishment of newly planted hedgerows and the implementation of the management prescriptions specified in the **Outline LEMP [EN010168/APP/7.18]** over the course of the operational phase, it is anticipated that the Scheme will result in a **significant beneficial effect** to the quality and extent of hedgerows and trees within the Sites, which would be significant at a **Local level**. No additional mitigation measures are deemed to be required.

Ditches and Watercourses

Construction Phase Impacts

9.10.145 The Scheme will avoid and minimise direct impacts upon ditches by utilising existing crossings for access wherever possible as a result of an iterative refinement process. New permanent culverts for access across ‘wet’ ditches (i.e. those likely to regularly hold water for more than 4 months of the year as defined in the UKHab Classification guidance (Ref 9-35)) are proposed at three

locations within Lime Down D. These will each measure approximately 6 m wide. No culverts will be installed in existing rivers at the Solar PV Sites. When compared to a wet ditch/watercourse network which measures approximately 16.35 km, proportionately very little (less than 0.002 %) of the overall ditch and watercourse network will be impacted by the construction of new accesses. Culverts will be designed so that the flow of water through the channel is not impeded, including the base of the culvert being set beneath the existing channel bed. Several other new culverts for access at the Solar PV Sites will be located at dry or seasonally inundated ditches, which are not expected to have impact on the quality of the ditch network or its value to wildlife. In addition, three new proposed non-vehicular crossings for permissive paths are proposed (refer to the **Outline Public Rights of Way Management Plan [EN010168/APP/7.17]**), all of which will be open span and measure approximately 1 m in width, and are not expected to result in adverse impacts on the ditch network or wildlife present at given the small size and non-intrusive design. Therefore **no significant effects** on the extent and quality of the local ditch network within the Solar PV Sites through the creation of new crossings is anticipated.

9.10.146 Similarly, for the cable installation works, new crossings and incursions into ditches and watercourses have been minimised wherever possible in siting the Cable Route Corridor. An indicative route to be taken within the Cable Route Corridor has been proposed, although it is acknowledged that this is subject to some future potential refinement as all constraints regarding ground conditions, vehicular access and construction practicalities cannot be fixed at this stage. Five watercourses within the Cable Route Corridor are in avoidance areas where trenchless solutions (e.g. HDD) will be used to install cables, including all Main Rivers as designated by the Environment Agency (Ref 9-57). The watercourses to be crossed using trenchless technology are generally those of highest value for biodiversity, in terms of extent and variety of aquatic and riparian features and connective strength with other aquatic bodies, with the majority of other watercourses to be crossed by the Cable Route Corridor comprising dry or seasonally dry farm drainage ditches. Nevertheless, multiple crossings of ditches and watercourses will be required, and these are provided in the crossing schedule (**ES Volume 3, Appendix 11-1: Flood Risk Assessment and Drainage Strategy Covering Report [EN010168/APP/6.3]** refers). Whereas new ditch crossings within the Solar PV Sites will result in a permanent culverted section, the trenching for the cable installation will be short term and any ditches/watercourses affected will be returned to a functional condition once the cabling has been installed. Consequently, such impacts are considered to be temporary and reversible.

9.10.147 In the absence of additional mitigation, there is the potential for these crossings to cause **significant adverse effect**s at the **Local** level, through damage to multiple ditches and watercourses across the Cable Route Corridor.

9.10.148 The relatively short width of any new permanent (up to 6 m wide) or temporary (up to 12 m wide) crossings required is not anticipated to result in any significant fragmentation effects on the local ditch/watercourse network. These widths are representative of the numerous culverts and land bridges present across the ditch network at the Order Limits, typically to provide farm access, and the water will still be able to flow unimpeded.

9.10.149 Without the implementation of protective buffer zones, there is a risk that existing ditches may be damaged or degraded through direct construction damage or indirect impacts such as the release of sediments or dust which could flow into connected watercourses off site. Accidental pollution events are considered unlikely, but if they were to occur they would potentially have a detrimental effect on the quality of habitats on within the Order Limits and downstream in the short to medium term depending on severity.

9.10.150 It should also be noted that a certain amount of dust deposition and run off would be anticipated as a result of routine annual agricultural activities and as such effects are likely to be similar to the current baseline conditions. Nevertheless, given the large extent of this habitat present across the Order Limits, impacts from dust deposition and/or run off are considered to have the potential to result in detrimental effects.

9.10.151 Embedded mitigation measures to minimise the likelihood and severity of pollution events, dust deposition and run-off arising during the construction and operation and maintenance phases, have been incorporated into the Scheme. The Solar PV Sites have been designed to implement buffer zones free of development at least 8 m from every ditch, with a minimum of 10 m from rivers, however where watercourses are associated with hedgerows or woodland, this buffer has been extended to a minimum of 15 m. The **Outline CEMP [EN010168/APP/7.12]** and **Outline EPMS [EN010168/APP/7.19]** detail how vehicles, plant and materials will be transported to the construction zone, as well as other standard environmental protection measures that will apply to the construction phase, such as dust suppression, pollution control measures and protection of adjacent habitats/watercourses from surface runoff.

9.10.152 As a result, **no significant adverse effects** associated with the degradation of ditches and watercourses through sedimentation and/or pollution events during the construction phase are anticipated.

9.10.153 Overall, in the absence of additional mitigation, the creation of new crossings across existing ditches within the Cable Route Corridor are considered to have the potential to result in a **significant adverse effect** at the **Local** level, through unmitigated direct damage to the watercourses during construction of the crossings.

Operation and Maintenance Phase Impacts

9.10.154 Water quality can be expected to significantly increase post-development due to the anticipated reversion of largely arable land to permanent grassland within the solar arrays (likely resulting in reduced sediment run-off when compared with arable systems) and the cessation of application of fertilisers and pesticides.

9.10.155 The sympathetic management of field margin habitats which is detailed in the **Outline LEMP [EN010168/APP/7.18]** can be expected to benefit the biodiversity value of the ditch network through the proliferation of marginal wetland species following a reduction in management (cutting) frequency and agricultural inputs.

9.10.156 The risk of ongoing pollution or damage from routine maintenance operations is anticipated to be minimal given the general restriction of vehicle movements to made-up tracks and the imposition of development free buffer zones between hardware and ditch habitats. As described in **Chapter 3: The Scheme [EN010168/APP/6.1]** any required cleaning of panels will utilise deionised water ensuring there is no risk to watercourse from pollution via chemicals used for cleaning.

9.10.157 As the area proposed for BESS is close to existing ditches, there is a risk of battery fire and subsequent discharge of chemicals into the local watercourse network. This could potentially degrade the water quality of the connecting ditches and watercourses. Ecological buffers have been embedded into the design of the Scheme from an early stage, in order to minimise the likelihood of adverse impacts arising during the operational phase. Additionally, embedded mitigation measures to minimise the likelihood and severity of battery fire have been incorporated into the Scheme, including the implementation of fire suppression systems, with containment measures in place to manage runoff in the event of a fire. The measures to mitigate impacts in the event of a fire are detailed within the **Outline Battery Safety Management Plan (OBSMP) EN010168/APP/7.21]**. These are discussed in more detail in **Chapter 11: Hydrology, Flood Risk and Drainage [EN010168/APP/6.1]**, and **Chapter 19: Ground Conditions and Contamination [EN010168/APP/6.1**].

9.10.158 Given the general lack of impact pathways to ditches and watercourses during the operational phase, as well as the embedded mitigation measures to address the risk of a BESS fire, **no significant adverse effects** are anticipated to arise during the operational phase, and no additional mitigation measures are considered to be required. Following the cessation of agricultural practices and the successful implementation of sensitive management measures secured through the **Outline LEMP [EN010168/APP/7.18]**, it is anticipated that the Scheme would likely result in a **significant beneficial residual effect** on the quality of the local ditch and watercourse network, which would be significant at a **Site** level.

Species

Badgers

Construction Phase Impacts

9.10.159 Badgers may be adversely impacted by the Scheme through loss of habitat in which to build setts, accidental direct harm during construction, disturbance by vehicles and personnel, or the compaction of soil around setts.

9.10.160 Development free buffer zones of 10 m and 30 m around all known setts within the Solar PV Sites according to their status have been designed into the Scheme and will be implemented for the lifetime of the Scheme. Therefore, no losses of badger setts which have been identified through pre-application surveys are currently anticipated within the Solar PV Sites during the construction phase. However, as badgers can dig new setts in very short spaces of time, any new setts excavated within the construction areas (outside of the pre-designed buffer zones) may need to be excluded under licence prior to construction commencing in that area to avoid offences associated with the Protection of Badgers Act 1992.

9.10.161 In addition, setts within the Cable Route Corridor will be avoided as far as possible through micro-siting of the cable trench to avoid impacts, however where this is not feasible and setts are likely to be impacted through cable route installation, these setts may also need to be excluded prior to construction commencing.

9.10.162 Given that the scope of exclusion works of setts within the Cable Route Corridor, as well as any potentially newly excavated setts (either at the Solar PV Sites or in the Cable Route Corridor), cannot be identified, the significance of this potential impact cannot be fully known, although given that existing setts will be retained and protected wherever possible, the loss of a small proportion

of setts is likely to only constitute a potential **significant adverse effect** at the **Site** level, in a worst-case scenario.

9.10.163 Perimeter security fencing is not considered to be a barrier to badger movement given their propensity for digging (the security fencing is not proposed to be buried). Badger gates are not considered necessary within security or protective fencing as there is no evidence of their usage from information gathered from extensive monitoring of active solar sites (Ref 9-58). Badgers are known to preferentially dig under fencing or move through gaps in the fencing material as opposed to actively seeking features such as gates. Natural undulations in the ground should be used to ensure sufficient space beneath fencing to facilitate badger access is available. Where no such undulations occur, it is considered most effective to raise the height of fencing panels to leave a narrow gap (no greater than 100 mm) which badgers (among other animals) will exploit to gain access. These embedded measures will be considered and implemented during the construction of the Scheme and are secured within the **Outline EPMS [EN010168/APP/7.19]**, and therefore **no significant effects** arising from habitat fragmentation during the construction phase are anticipated.

9.10.164 There will be a temporary reduction in the extent of foraging habitat available to badgers due to the loss of the in-field habitats during construction, until new habitats establish. However, badgers are highly mobile and the temporary loss of habitats within the Sites during construction is anticipated to be similar in effect (i.e. causing disturbance or temporary displacement to badgers) to the regular agricultural activities or harvesting, sowing, harrowing and rolling that take place across much of the Scheme at present. It is considered that the Sites would become suitable again for badgers immediately once works in a particular area are completed. As a result, **no significant effects** arising from the loss of habitat or displacement/disturbance during the construction phase are anticipated.

9.10.165 During the construction phase, if deep trenches are left open overnight or high voltage machinery is present, there may be potential for incidental injury or mortality to badgers exploring the site during the night. Should this result in the death of individual badgers, this would constitute a **significant adverse effect** at the **Site** level and may also constitute an offence under the WCA1981 .

Operation and Maintenance Phase Impacts

9.10.166 During the operational phase, badgers are likely to benefit from an improved abundance of favoured food items within the grassland under the arrays, as permanent grassland has been shown to contain a greater abundance of earthworms and soil invertebrates than arable soils (Ref 9-59).

9.10.167 Further potential beneficial effects include reduced disturbance or habitat degradation during the operational phase compared to baseline levels, primarily due to the cessation of agricultural activities and increased sheltering and dispersal habitat cover due to new hedgerow woodland and tree planting and grassland habitat creation.

9.10.168 With the embedded buffer zones in place, badgers are not considered likely to be affected by ongoing operational maintenance or during the replacement of panels and batteries (understood to be every 30 and 10 years respectively) for the duration of the operational phase of the Scheme. Routine maintenance will also not typically be conducted during the hours of darkness when badgers are most active. Following the implementation of the buffer zones and the deliverance of the soft landscaping measures described in the **Outline LEMP [EN010168/APP/7.18]**, it is anticipated that the Scheme would result in a **significant beneficial effect** on the availability of suitable foraging and sett-building habitat for badgers, which would be **significan**t at the **Site** level.

9.10.169 It is considered highly unlikely that any new badger setts would be excavated within the main body of the arrays, such that there would be potential conflict with ongoing operation and maintenance activities. However, this possibility cannot be ruled out. Although considered unlikely, the damage of disturbance of active badger setts during the operational phase would constitute a **significant adverse effect** at the **Site** level.

Bats – Roosting Bats

Construction Phase Impacts

Solar PV Sites – Trees and Buildings

9.10.170 A large number of trees with suitability for roosting bats were recorded at the Solar PV Sites, both within field boundary habitat (i.e. hedgerows, tree belts and woodland edges) and within in-field trees, in addition to four buildings within the Solar PV Sites. Locations of these are provided in **ES Volume 3, Appendix 9-3: Bat Survey Report [EN010168/APP/6.3]** and **ES Volume 2, Figure 9-3-2 to 9-3-6: Bat Roosting Opportunities [EN010168/APP/6.2]**. Any loss of trees or buildings capable of supporting roosting bats could result in direct harm, population fragmentation and habitat degradation.

9.10.171 However, the design of the Scheme has ensured that all four buildings and all trees with bat roost potential will be retained. In-field trees act as islands or stepping-stones for wildlife, and these are to be buffered from development by a minimum of 10 m. The Scheme has also been designed to ensure no in-field trees will be entirely surrounded by Solar PV Panels, with new hedgerows to be

planted to provide connective linkages between in-field trees and nearby field boundaries (refer to **ES Volume 2, Figure 3-4: Landscape and Ecology Mitigation Plan [EN010168/APP/6.2]).** Trees at field boundary habitats with potential to support roosting bats will be protected via maintaining an undeveloped buffer at least 15 m from all boundary hedgerows, woodlands and trees.

9.10.172 The Scheme has been designed to ensure no development will occur within 15 m of any building with roosting potential at the Solar PV Sites, with the only exception to this being a fence and access track passing 10 m to the east of a farm building in the south west of field A4 (**ES Volume 3, Appendix 9-3: Bat Survey Report [EN010168/APP/6.3]** refers) to provide access into field A4 from field A3. A track is to be provided here to make use of an existing entrance in the field boundary and avoid removal of a stone wall and vegetation which forms this boundary. The provision of an access track 10 m from this building at an existing boundary gap is not expected to result in harm to bats that may potentially roost in this building owing to the attenuation of noise and vibration over this distance, considering the level of usage it will receive. This approach is preferential to removing a section of the stone wall and vegetation to create an alternative access further from the building.

9.10.173 All buildings and trees with potential for roosting bats within the Solar PV Sites will be retained and protected from damage during construction through the implementation of protective barrier fencing, as detailed in the **Outline EPMS [EN010168/APP/7.19]**. Consequently, it is considered that the construction phase will result in **no significant effects** on roosting bats within the solar PV sites.

9.10.174 There is also the potential for roosting bats utilising existing buildings and trees within the Order Limits to become isolated should any linear habitat features (such as hedgerows) which provide connectivity between building roosts and the local landscape, be lost or degraded. However, given that the Scheme has been designed to utilise existing accesses and hedgerow gaps wherever possible, it is anticipated that the level of hedgerow loss across the Scheme (as discussed in section 9.10.137 above) will result in **no significant effects** associated with habitat fragmentation/degradation for roosting bats.

Cable Route Corridor – Trees and Buildings

9.10.175 A number of trees and buildings with varying levels of suitability for roosting bats have been identified within the Cable Route Corridor (**ES Volume 3, Appendix 9-3 Bat Survey Report [EN010168/APP/6.3]** refers). All buildings are currently in use for agriculture and it is not anticipated that any will require removal or modification for cable installation works. While all effort will be made to avoid

impacts on trees with bat roosting potential, including through micro-siting of the final cable route within the Cable Route Corridor to avoid such features, it is probable that some loss of trees within the Cable Route Corridor may be necessary for access/ installation of the cable route. Consequently, there remains a risk of direct harm or disturbance to roosting bats during removal of any suitable trees. These could result in **significant adverse effects** at a **Local** level.

9.10.176 Should the loss of any trees be unavoidable, then additional mitigation measures will be required to ensure that potential impacts upon roosting bats are fully considered and mitigated/compensated for as appropriate, as well as ensuring legal compliance.

Artificial Lighting

9.10.177 Artificial lighting at night can impact the activity of roosting bats, including through delaying emergence times or even preventing bats from leaving a roost. This may result in reduced foraging times and thereby reduced health of the bats, or even death from 'entombing' the bats inside their roost. No artificial lighting is considered likely to be required during construction outside of the winter months, however, during winter, artificial lighting may be required within the construction zone due to the short day lengths. Bats are typically in hibernation during the winter months, and only active occasionally for short periods; but could be significantly affected if lighting prevents their emergence from a roost at key periods when they need to forage to maintain their body condition. Embedded mitigation measures include buffer zones around trees and buildings identified as being suitable for roosting bats, which are proportionately sized to the suitability of the tree. These buffers will reduce the likelihood of any light spill impacting any roosts present within trees. Further limitations on the use of lighting during the construction phase to minimise potential impacts on roosting bats are provided in the **Outline EPMS [EN010168/APP/7.19]**. **No significant effects** on roosting bats are anticipated as a result of construction of the Scheme.

Operation and Maintenance Phase Impacts

9.10.178 No permanent external artificial lighting is due to be used within the operational Scheme, other than motion sensitive luminaires installed at substations and battery storage facilities (and not within the arrays themselves). These will only be used when necessary, such as for maintenance and for security breaches, rather than year-round and will only operate when personnel are in attendance on Site or in the event of an unauthorised break-in. During any required cleaning of the panels, which would be infrequent (likely to be no more than every two years, as described in **Chapter 3:The Scheme**

[EN010168/APP/6.1]), panels would be cleaned at night and would likely require lighting. This level of lighting would be similar to lighting required for night-time agricultural activities carried out in the area, and generally away from any potential roost sites. **No significant effects** from lighting on roosting bats are anticipated during operation and maintenance.

9.10.179 The largely passive nature of the operational Scheme means impacts on hedgerows, trees and buildings are not anticipated, particularly when considering all ecological buffers which will be implemented and observed for the lifetime of the Scheme.

9.10.180 Given the lack of impact pathways on roosting bats during the operational phase, **no significant effects** are anticipated.

Enhancement

9.10.181 The inclusion of new tree mounted bat roosting features is proposed. These features are specified in the **Outline LEMP [EN010168/APP/7.18]** and will provide a greater number of potential roosting features in the landscape and may constitute a long-term beneficial effect, should they be utilised by roosting bats.

Bats – Foraging/Commuting

Construction Phase Impacts

Solar PV Sites

9.10.182 The hedgerows, woodland edges, grassland fields, and the ditches and watercourses were considered to be the habitats of highest value for foraging and commuting bats within the Solar PV Sites. While existing field accesses will be utilised wherever possible, permanent losses of short (anticipated to be 3.5-6 m) sections of hedgerow will be unavoidable in a small number of cases, with occasional (up to 16) wider (up to 18 m wide) sections of hedgerow requiring removal for access from the existing highway network; the extent of which will be determined following the finalisation of the Scheme design. As discussed under paragraph 9.10.137 above, these hedgerow losses constitute a very small proportion of the overall hedgerow network present at the Solar PV Sites, and are considered highly unlikely to significantly fragment any foraging or commuting routes used by bats. The species recorded within the Sites are considered able to overcome typical hedgerow gaps of 3.5-6 m (as per existing hedgerow gaps at baseline) and occasional gaps of 18m when dispersing. It is considered that the design of the Scheme and the low level of hedgerow losses anticipated would be unlikely to have an impact upon the favourable conservation status of the bat assemblage present within the Sites, and

therefore **no significant effects** arising from boundary habitat loss during the construction phase are anticipated.

9.10.183 The removal of in-field grassland habitats, and to a lesser extent arable cropland, will result in a temporary reduction in available foraging habitat at the Solar PV Sites (albeit habitat typically of low suitability) until new habitats establish. This is likely to reduce the availability of invertebrate prey for foraging bats in the short-term. All hedgerows and field boundary habitats will be protected and retained by implementing undeveloped buffer zones. These will measure at least 15 m from all existing hedgerows, tree lines and woodlands, ensuring these key features and a wide margin either side will be maintained and available for continued use by foraging/commuting bats. Although a minor adverse impact arising from temporary habitat loss within the Solar PV Sites can be expected, such impacts are considered to be **non-significant.**

Cable Route Corridor

9.10.184 The habitats within the Cable Route Corridor are generally similar to those within the Solar PV Sites, comprising mixed arable and grassland farmland bounded by a network of hedgerows, with occasional woodland and watercourses. As described above, woodland and key watercourse are not expected to be impacted by cable route installation, with trenchless technologies adopted in places to avoid these habitats, which are likely to be of elevated value for bats. Given the generally small land take required in any field (typically a 25 m working width), the short-term, temporary loss of in-field, typically agricultural habitats within the Cable Route Corridor are anticipated to have a non-significant impact during the construction phase and will be reinstated upon completion of the works.

9.10.185 Temporary loss of many sections of hedgerow (10-12 m wide) will be required for the cable installation works, as well as a small number (up to five) wider (up to 18 m wide) temporary gaps for construction access from the highways network, as described in section 9.10.138, although these will be replanted on completion of works in the Cable Route Corridor. However, as there will be a time lag between removal of hedgerows and the subsequent establishment and development of hedgerows to achieve comparable functionality and value to bats, there will be a consequent reduction in habitat quality and integrity within the Cable Route Corridor. This will be a short to medium term impact and has the potential to result in **significant adverse effects** on foraging/commuting bats at the **Local** level.

Artificial Lighting

9.10.186 Artificial lighting at night can dissuade bat activity, impact the behaviour of invertebrate prey, and potentially fragment commuting routes for particularly light-averse species. No artificial lighting is considered likely to be required during construction outside of the winter months, however, during winter, artificial lighting may be required within the construction zone due to the short day lengths. Embedded mitigation measures include buffer zones from the most valuable foraging and commuting habitats, such as hedgerows, woodland and watercourses. Additionally, a sensitive lighting strategy will be implemented, as detailed in the **Outline EPMS [EN010168/APP/7.19]**, whereby all artificial lighting is installed to minimise limit light spill on any habitats outside of the immediate working area. This sensitive lighting strategy will be adopted during construction of all elements of the Scheme. As such, the likelihood of light spill onto key foraging and commuting habitats is very low. Furthermore, as bats are in hibernation during the winter months, and only active occasionally for short periods, they are unlikely to be significantly affected by the use of artificial lighting during the winter months. Therefore, should artificial lighting in winter be required, **no significant effects** are anticipated including in areas where bats are likely to be particularly sensitive to lighting, such as where the Cable Route Corridor intersects an Impact Zone for the Bath and Bradford-on-Avon Bats SAC.

Operation and Maintenance Phase Impacts

9.10.187 The effects of the installation of solar panels on bat activity and the activity of their prey is largely unknown. There is research to suggest a potential level of displacement effect of ground-mounted solar arrays on foraging and commuting bats (Ref 9-60), with reduced activity levels observed by some species among arrays compared to control sites. The study did not find bats avoiding solar arrays altogether, and for some species (namely greater horseshoe and barbastelle), no difference was observed. Several issues have been identified with this study, including a lack of baseline (pre-development) data on both habitat type and bat activity, as well as a short window of sampling. Furthermore, the microphone height for the detectors was set at 1.27 m (around the mid-height of panels), which may have precluded detection and account for the observed apparent reduction in activity levels. Another study (Ref 9-61) reported a change in flight patterns and reduced feeding behaviour of certain bat species over ground-mounted solar sites. It is important to note that there is no evidence that any species of bat avoids foraging over solar panels altogether, with evidence to date suggesting that only that a reduced level of activity may occur for some species.

9.10.188 A width of 15 m from all likely key habitats for bats (hedgerows, tree belts and woodlands) at the Solar PV Sites has been partially derived from the

Trowbridge Bat Mitigation Strategy supplementary planning document (SPD) (Ref 9-13). This document stipulates a 15 m minimum standoff distance from 'Retained Bat Core Habitat' to all new development. Although this SPD has been prepared primarily to guide new housing development around Trowbridge, it nevertheless sets out an agreed strategic approach to mitigating the impact of development on local bat populations in Wiltshire, through maintaining sufficient opportunities for foraging and dispersal. Within the SPD, the 15 m buffer zone is termed 'New Core Bat Habitat' and within this hedgerows, trees, scrub and wildflower grassland is encouraged.

9.10.189 This buffer size will be applied regardless of the quality of habitat present at the boundaries for bats. The proposed treatment of buffer zones across the Solar PV Sites is set out within the **Landscape and Ecology Mitigation Plan [EN010168/APP/6.2]** & **Outline LEMP [EN010168/APP/7.18].** Generally it is proposed to provide habitat for bats of greater value than the existing largely arable land, through creation of habitats and features such as diverse tussocky grassland, wildflower rich grassland, scrub and tree planting where appropriate. For most interior hedgerows which do not form part of the boundary of each Solar PV Site, a resulting 30 m minimum naturally vegetated buffer will be in place (15 m on each side of the hedgerow), which can be expected to deliver optimal foraging and commuting habitat for a range of bat species covering large swathes of the Solar PV Sites in total.

9.10.190 In addition, during the operation and maintenance phase of the proposed solar array, the expected cessation of arable farming practices, including spraying of pesticides and insecticides, and reversion of land to grassland (for the lifespan of the Scheme) can be expected to result in an increase in the abundance and diversity of invertebrate prey.

9.10.191 However, the adoption and use of land within solar arrays by foraging and commuting bats is still poorly understood, and there is a lack of evidence in the current body of research literature to infer solar arrays have a beneficial impact on foraging bats. Overall therefore, it is considered impacts on bats resulting from avoidance of Solar PV Panels will be largely neutral; particularly when considering the likely higher value of the habitats present within the operational site (predominately comprising grassland) over the baseline of largely arable land, together with the large development-free buffer zones which are comparatively wider than other similar schemes and retain the most valuable habitat for foraging/commuting bats. As a result, **no significant adverse effects** associated with the partial displacement of bats from in-field areas of the constructed Scheme for foraging/commuting bats are currently anticipated.

9.10.192 The planting of trees and new hedgerows, as well as the enhancement of those habitats being retained (predominately through more favourable management), would likely increase the permeability of the landscape and overall habitat diversity and quality for bats. These measures would also increase foraging resource availability and may also provide additional roosting opportunities in the long term. The habitat creation and enhancement measures anticipated to arise through the Scheme would likely provide a long-term, **significant beneficial** effect on bats at the **Local** level.

9.10.193 Consideration of the impacts of noise on foraging/commuting bats from noise-generating operational elements of the Scheme bats has been considered. As detailed in **Chapter 14: Noise and Vibration [EN010168/APP/6.1**], the anticipated sound levels at source from the main elements likely to generate operational noise are the following:

- BESS Units –82.6 dB(A) Sound Power Level (SWL)
- BESS Inverters –87.9 dB(A) SWL
- Conversion Units –90.6 dB(A) SWL
- 400Kv substation transformer x5 –73 dB(A) SWL
- 132kV substation transformers x2 per substation area –63 dB(A) SWL

9.10.194 Available scientific evidence on how bats are affected by noise is currently limited and requires further research before conclusive assessments can be made. However, among the available research, a study of Daubenton's bats indicated noise avoidance behaviour at levels of 68-84 dB (Ref 9-62). Another study from the USA found bat foraging behaviour did not alter at sounds levels of up to 68 dBA (Ref 9-63), while a study of brown-long eared bats, Bechstein's bat and greater mouse-eared bat *Myotis myotis* indicated that bat behaviour is affected at sound levels above 60 dB (Ref 9-64).

9.10.195 Whilst acknowledging the limited evidence available on the subject, these studies indicate that noise avoidance behaviour in foraging/commuting bats begins to occur at levels above 60 dB. As part of the design of the Scheme, all of the above listed sources of operational noise will be sited a minimum of 15 m (and typically further) from likely key habitats for foraging/commuting bats at the field boundaries, such as hedgerows, tree lines, woodlands, and watercourses. Sound power levels of the loudest operational element (Conversion Units not fitted with silencers) are expected to be 90.6 dB(A). However, at a distance of 10 m this will drop below 60 dB(A), and at a distance of 15 m (the minimum distance to field boundary features) this equates to a sound pressure level of 56 dB(A).

9.10.196 Consequently, sound pressure levels at field boundary habitats near to sources of operational noise are likely to be below the threshold believed to affect bats, and **no significant adverse effects** arising on foraging/commuting bats from this potential source of impact are anticipated.

9.10.197 As described in **Chapter 3: The Scheme [EN010168/APP/6.1],** permanent external lighting is only to be installed at substations and battery storage facilities (and not within the arrays themselves). This will comprise motion sensitive security lighting to maintain safe working conditions in winter months, surety purposes and maintenance activities, and will only be used when necessary. Any adverse impacts associated with artificial lighting during the operation and maintenance phase are therefore anticipated to be infrequent, short-term and **non-significant**.

9.10.198 Overall, with the successful implementation of the habitat creation and enhancement measures, set out in the **Outline LEMP [EN010168/APP/7.18]** and to be finalised in the eventual detailed LEMP, as well as the successful management of the habitats within the Sites for the benefit of biodiversity, it is considered that residual effects on foraging/commuting bats during the operational phase would be in the worst case **neutral and not significant**. The potential exists for habitat value and connectivity and the diversity and abundance of night flying invertebrates, to increase in the long term as a result of the Scheme. These factors have the potential to confer a **significant beneficial effect** on the bat population at a **Local** level, provided that management objectives are successfully realised.

Dormice

Construction Phase Impacts

9.10.199 Dormice are a primarily arboreal species and suitable habitat at across the Order Limits consists of hedgerows, scrub and woodlands, and their presence has been assumed in all such suitable habitat. The arable and grassland fields which form the vast majority of habitats within the Order Limits is unsuitable for this species.

9.10.200 At the Solar PV Sites, while existing field accesses will be utilised wherever possible, losses of short (anticipated to be 3.5-6 m) sections of hedgerow will be unavoidable in a small number of cases with occasional (up to 16) wider (up to 18 m wide) sections of hedgerow requiring removal for access from the existing highway network; the extent of which will be determined following the finalisation of the Scheme design. Where such losses are required, there is a small but not inconceivable risk of harming individual dormice. In the absence of additional mitigation measures, this impact would be considered **adverse and**

significant at **Site** level. All retained suitable habitat will be buffered with an undeveloped area of at least 15 m between working areas, meaning

9.10.201 As discussed under 9.10.137, these hedgerow losses constitute a very small proportion of the overall hedgerow network present at the Solar PV Sites, and are considered highly unlikely to significantly fragment dormouse populations, with research evidence demonstrating that dormice are able to readily cross gaps at vehicular roads of widths of 5-17 m, and in some cases larger distances (e.g. Ref 9-65, Ref 9-66). It is considered that the design of the Scheme and the low level of permanent hedgerow losses anticipated would be unlikely to have an impact upon the favourable conservation status of a dormice population present at the Solar PV Sites and therefore **no significant effects** arising from boundary habitat loss during the construction phase are anticipated.

9.10.202 Temporary loss of many sections of hedgerow (10-12m wide) will be required for the cable installation works, as described in section 9.10.138, as well as a small number (up to five) wider (up to 18 m wide) temporary gaps for construction access from the highways network, although these will be replanted on completion of works in the Cable Route Corridor. As for the Solar PV Sites, where such losses are required, there is a small but not inconceivable risk of harming individual dormice. In the absence of additional mitigation measures, this impact would be considered **adverse and significant** at **Site** level.

9.10.203 Permanent loss of suitable habitat for dormice with the Cable Route Corridor is not anticipated as habitats will be reinstated on completion of the cable installation works, and as described above, gaps of that relatively small size are not anticipated to result in fragmentation impacts on dormice. However, as there will be a time lag between removal of hedgerows and the subsequent establishment and development of hedgerows to achieve comparable functionality and value to dormice, there will be a consequent reduction in habitat quality and integrity within the Cable Route Corridor. This will be a short to medium term impact and has the potential to result in **significant adverse effects** on dormice at the **Local** level.

Operation and Maintenance Phase Impacts

9.10.204 Adverse impacts on dormice during the operational phase are likely to be minimal, considering the adoption of ecological buffer zones and the restriction of development and vehicle movement to outside of these zones, save for periodic habitat management operations. As a result, **no significant adverse effects** on dormice are anticipated during the operation and maintenance phase, and no additional mitigation measures are required.

9.10.205 The planting of new hedgerows, as well as the enhancement of those habitats being retained, and additional woodland planting within the Solar PV Sites, which are managed for the benefit of biodiversity as per the **Outline LEMP [EN010168/APP/7.18]**, would likely increase the overall habitat extent and quality for dormice across the Solar PV Sites, as well as strengthen connective linkages between suitable habitat in the surrounding landscape. The habitat creation and enhancement measures to be provided as part of the Scheme are likely to provide a long-term, **significant beneficial effect** on dormice at the **Local** level, if present within all suitable habitat at the Order Limits as has been assumed for this assessment.

Enhancement Measures

9.10.206 The inclusion of new dormouse nest boxes within features is proposed. These features are specified in the **Outline LEMP [EN010168/APP/7.18]** and will provide a greater number of potential nesting opportunities for dormice at the Solar PV Sites. These may constitute a long-term beneficial effect, should dormice be present at the Solar PV Sites.

Riparian Mammals – Otters, Water Voles and Beavers

Construction Phase Impacts

9.10.207 Otters and water voles may be impacted through direct harm (to individual animals or their burrows) or disturbance during any construction activity directly affecting ditches, watercourses and associated adjacent scrub, hedgerows or woodland habitat. This includes the creation of new accesses and internal access tracks, where these do not use existing culverts/ditch crossing points. The Scheme has been designed to utilise existing access points and culverts to cross between fields as much as possible, however new culverts will be required where existing accesses and tracks are not suitable for vehicle movements during the construction phase, as set out in the crossing schedule (**ES Volume 3, Appendix 11-1: Flood Risk Assessment and Drainage Strategy Covering Report [EN010168/APP/6.3]** refers).

9.10.208 As described in **ES Volume 3, Appendix 9-6: Otter and Water Vole Survey Report [EN010168/APP/6.3]**, surveys have recorded water voles within the watercourse and ditch network at Lime Down D, although they are considered to be absent from the remaining Solar PV Sites. Evidence of otters have been recorded within Lime Down D and E at the Solar PV Sites, with the remaining Solar PV Sites containing watercourses of suboptimal suitability for otters, although they could be used when dispersing around the landscape.

9.10.209 Of those crossing points identified at the Solar PV Sites, the majority of proposed new crossings are within ditches where water voles are likely to be absent, as identified through surveys. However, 3 new culverts are proposed in a ditch between fields D24 and D22. Although this ditch is in itself of somewhat poor suitability for water voles (it appears to dry up regularly in the summer months), two possible water vole burrows were recorded in this ditch, circa 250 m from the closest proposed crossing point, and it is connected to other habitat with water voles recorded. In addition, it is possible that an existing vehicular crossing at Gabriel's Well watercourse in Lime Down E may need to be improved to ensure it meets construction/operation and maintenance vehicle requirements (SM4 on the crossing schedule (**Appendix 11.1 [EN010168/APP/6.3]** refers).

9.10.210 Several other temporary crossings for cable route installation works will be required within the Cable Route Corridor. Trenchless technologies (e.g. HDD) will be adopted to cross watercourses typically of highest suitability and connectivity for otters and water voles within the Cable Route Corridor to minimise impacts, although several watercourses with at least some suitability are proposed to be crossed via open-cut trenching. Otters and water voles may be impacted through direct harm or disturbance during cable installation, especially where open-cut trenching is used at watercourse crossing points.

9.10.211 In the absence of mitigation, individual otters and water voles may be impacted through direct harm (to individual animals or their burrows, holts and rest sites) or disturbance during any construction activity affecting ditches, watercourses and associated bank top habitats within the Solar PV Sites and the Cable Route Corridor. This would potentially result in **significant adverse effects** at the **Local** level.

9.10.212 The relatively short width (up to 6m) of any new permanent or temporary crossings required is not anticipated to result in any significant fragmentation effects on the local ditch/watercourse network. These widths are representative of the numerous culverts and land bridges present across the ditch network at the Order Limits, typically to provide farm access. An existing crossing at Gabriel's Well watercourse in Lime Down E may need to be improved to ensure it meets construction/operation and maintenance vehicle requirements (SM4 on the crossing schedule (**Appendix 11.1 [EN010168/APP/6.3]** refers). Any improved crossing here will be an open-span structure, with no incursion into the channel and clearance of the banksides beneath the improved structure as per the existing crossing, ensuring no impediment to movement of water voles and otters at this location. Therefore **no significant effects** arising from potential fragmentation of habitat for otter and water voles are considered likely to occur.

9.10.213 Construction activities and the use of vehicles and construction equipment in the vicinity of watercourses may also cause disturbance to otters and water voles within shelter, as well as accidental damage to their habitat or burrows. In addition, without the implementation of protective buffer zones, there is a risk that habitat used by otters and water voles may be damaged or degraded through direct construction damage or indirect impacts such as the release of sediments or dust which could flow into connected watercourses off site. Accidental pollution events are considered unlikely, but if they were to occur they would potentially have a detrimental effect on the quality of habitats on within the Order Limits and downstream in the short to medium term depending on severity.

9.10.214 It should also be noted that a certain amount of dust deposition and run off would be anticipated as a result of routine annual agricultural activities and as such effects are likely to be similar to the current baseline conditions. Nevertheless, given the large extent of this habitat present across the Order Limits, impacts from dust deposition and/or run off are considered to have the potential to result in detrimental effects.

9.10.215 Embedded mitigation measures to minimise the likelihood and severity of pollution events, dust deposition and run-off arising during the construction and operation and maintenance phases, have been incorporated into the Scheme. The Solar PV Sites have been designed to implement buffer zones free of development at least 8m from every ditch, with a minimum of 10m from rivers, however where watercourses are associated with hedgerows or woodland, this buffer has been extended to a minimum of 15m. The **Outline CEMP [EN010168/APP/7.12]** and **Outline EPMS [EN010168/APP/7.19]** detail how vehicles, plant and materials will be transported to the construction zone, as well as other standard environmental protection measures that will apply to the construction phase, such as dust suppression, pollution control measures and protection of adjacent habitats/watercourses from surface runoff.

9.10.216 As a result, **no significant adverse effects** associated with the degradation of ditches and watercourses through sedimentation and/or pollution events, or the inadvertent damage of holts, resting places or burrows (away from crossing points) during the construction phase are anticipated.

9.10.217 Beavers are not considered present within the Scheme Boundary currently, and **no adverse effects** are anticipated on this species as a result of construction phase activities. Given this species is known to have recently colonised the wider River Avon catchment and are expanding their range, it is conceivable they be present within suitable watercourse within the Order Limits in the

medium to long-term future and are thus considered within the operation and maintenance phase impacts section below.

Operation and Maintenance Phase Impacts

9.10.218 Operational impacts are expected to be minimal as vehicle movements will be infrequent and limited, taking place outside of the observed buffer zones, or only at designated access points which cross watercourses. This will significantly limit the risk of disturbance, pollution and damage impacts. Embedded mitigation measures to avoid impacts on key habitats described for the construction phase, including implementation of buffer zones and pollution prevention measures, will also apply during operational replacement of panels and batteries and are set out in the OEMP.

9.10.219 The **Outline LEMP [EN010168/APP/7.18]** will secure the favourable management of the site's buffer zones for the duration of the Scheme, thereby maintaining and potentially enhancing the habitat quality of ditches within and adjacent to the Order Limits. A beneficial effect may be possible through the favourable management of ditches and watercourses, to make previously sub-optimal ditches more favourable for otters, water voles and beavers. Cessation of arable activities will also reduce runoff and would be expected to improve watercourse quality in the immediate vicinity of the Solar PV Sites.

9.10.220 As a result of embedded mitigation measures, **no significant effects** on riparian mammals arising from routine management during the operation and maintenance phase are anticipated.

Other Mammals – Brown Hare

Construction Phase Impacts

9.10.221 Brown hares do not utilise burrows and instead raise their young leverets in forms (shallow indentations in the middle of fields). Although the leverets are precocial from birth, there is still a small risk of injury or mortality from construction activities. Hares breed between January and August and during these periods, the potential for impacts upon hares may be slightly greater than at other times of year.

9.10.222 Embedded mitigation measures in the **Outline CEMP [EN010168/APP/7.12]** and **Outline EPMS [EN010168/APP/7.19]** detail how a 10mph speed limit will be applied across the construction working areas, as well as how the existing arable habitats will be cleared or left fallow prior to construction. They also detail that, as part of their induction, construction staff will be informed of the potential presence of protected species including hare as well as the need to temporarily

cease works and implement an exclusion zone in the unlikely event that dependent leverets are discovered within a working area.

9.10.223 Hares are highly mobile and the temporary loss of habitats within the Solar PV Sites during construction is anticipated to be similar in effect (i.e. causing disturbance or temporary displacement to hares) to the regular agricultural activities or harvesting, sowing, harrowing and rolling that take place across much of the Scheme at present. It is considered that the Solar PV Sites would become suitable again for hares immediately once works in a particular area are completed. As a result, **no significant effects** arising from the loss of habitat or displacement/disturbance during the construction phase are anticipated.

9.10.224 Security or protective fencing is not considered to impede the movement of hares within or into the Sites. As such, **no significant adverse effects** associated with habitat fragmentation or population isolation as a result of the installation of security fencing are anticipated.

9.10.225 Assuming the successful implementation of the above embedded mitigation measures, as well as the fact that the anticipated levels of disturbance/habitat clearance during the construction phase are likely similar to that of baseline levels during routine agricultural activity, **no significant effects** on brown hare during the construction phase are anticipated.

Operation and Maintenance Phase Impacts

9.10.226 Operationally, the cessation of intensive arable farming and expected reversion of land to permanent grassland is likely to benefit hares, particularly through the cessation of regular disturbance from ploughing and harvesting. Ground-mounted panels also appear to be attractive sheltering features for brown hares avoiding predators and inclement weather. Monitoring carried out over large numbers of active solar arrays indicates that hares appear to benefit from the access to grazing and foraging beneath panels, being found in relatively high densities within solar arrays at sites where hares were recorded pre-construction (Ref 9-67). This may be due to either improved abundance or quality of foraging resources, or improved predator avoidance within an array. As a result, a **significant beneficial effect** in the availability of foraging habitat is anticipated.

9.10.227 Assuming the successful implementation of the habitat creation and management measures detailed in the **Outline LEMP [EN010168/APP/7.18]**, effects on brown hares during the operational phase are anticipated to be, in the worst case, neutral, and may be **beneficial** in the long term at the **Site** level as targeted habitats establish.

Other Mammals – Harvest Mouse, Hedgehog and Polecat

Construction Phase Impacts

9.10.228 These species are present or assumed to be present at the Order Limits, likely in low to moderate densities given the suboptimal to moderate habitat suitability for them (predominantly hedgerows and field margins).

9.10.229 Impacts upon these species may arise from direct harm and mortality through movement of vehicles and clearance of habitat associated with the creation of new access gaps in hedgerows and at grassland margins, where necessary, and the trenching of cables at or close to field boundaries. The **Outline EPMS [EN010168/APP/7.19]** details precautionary methods of working during any necessary clearance of boundary habitats associated with creating new access gaps, as well as trenching of cables. Measures incorporated into the **Outline EPMS [EN010168/APP/7.19]** include sensitive seasonal timing of works, the presence of an Ecological Clerk of Works and phased habitat removal, in order to safeguard a wide variety of species which may be present within the existing habitats. All cable trenching works will be followed by the reinstatement of any lost boundary habitats. When considering the mitigation measures embedded within the **Outline EPMS [EN010168/APP/7.19]**, it is considered that the risk of direct harm and mortality of harvest mouse hedgehog and polecat can be minimised as far as is reasonably practicable. As a result, **no significant effects** associated with this impact pathway are anticipated.

9.10.230 Disturbance during the construction phase may also cause some temporary displacement of these species. The temporary loss of habitats within the Solar PV Sites during construction is anticipated to be similar in effect (i.e. causing disturbance or temporary displacement to individual animals) to the regular agricultural activities or harvesting, sowing, harrowing and rolling that take place across much of the Scheme at present. It is considered that the Solar PV Sites would become suitable again for hedgehog and polecat immediately once works in a particular area are completed. As a result, any impacts would be of no more than low magnitude and **no significant effects** arising from the loss of habitat or displacement/disturbance during the construction phase are anticipated.

Operation and Maintenance Phase Impacts

9.10.231 Adverse impacts on harvest mouse, polecat and hedgehog during the operation and maintenance phase are likely to be minimal, considering the adoption of ecological buffer zones and the restriction of development and vehicle movement to outside of these zones, save for periodic habitat management operations.

9.10.232 **ES Volume 2, Figure 3-4: Landscape and Ecology Mitigation Plan [EN010168/APP/6.2]** and **Outline LEMP [EN010168/APP/7.18]** include a significant proportion of tussocky grassland habitat creation and management, both within buffer zones and beneath arrays. Furthermore, significant lengths of new hedgerow and tree planting is proposed. Buffer zones will also be wider than existing uncultivated field margins throughout the Scheme. These measures will increase the abundance of field margin habitat of suitability to these species. Connectivity and dispersal corridors for these species would likely increase, along with a reduction in disturbance and degradation of habitats from routine agricultural practices. Overall, the cessation of intensive agricultural land use and reversion of the land to low-input grasslands would likely result in a **significant beneficial effect** at the **Local** level for harvest mouse, hedgehog and polecat.

9.10.233 Perimeter security or protective fencing is not considered likely to impede the movement of harvest mouse, hedgehog or polecat within or into the Solar PV Sites. Embedded mitigation measures to avoid impacts on key habitats described for the construction phase, including implementation of buffer zones and pollution prevention measures, will also apply during operational replacement of panels and batteries and are set out in the OEMP.

9.10.234 Taking into account the cessation of impacts arising from the current land use within the Solar PV Sites (predominantly intensive arable farming), as well as the embedded mitigation and enhancement measures detailed in the OEMP and **Outline LEMP [EN010168/APP/7.18]**, overall a **beneficial effect** would be expected on harvest mouse, polecat and hedgehog, which would be **significant** at the **Local** level.

Enhancement Measures

9.10.235 The creation of enhancement features such as habitat piles created from logs and brash will provide an increased number of shelter resources for hedgehog. Provisions for the creation and maintenance of such features are provided within the **Outline LEMP [EN010168/APP/7.18]**.

Amphibians (including Great Crested Newt)

Construction Phase Impacts

9.10.236 The vast majority of the land on which the Solar PV Sites will be sited, namely arable fields and agricultural grassland, represent habitat of low habitat quality for amphibians. More suitable habitat is generally confined to hedgerows, ditches, woodland edges, and uncultivated field margins, which are to be

retained and protected by suitable buffers as part of the embedded mitigation measures.

9.10.237 All potential breeding features (ponds) within the Solar PV Sites are proposed to be retained and protected through the construction and operation and maintenance phases through the implementation of buffers within the Scheme design, within which no construction work or storage of materials will take place. These buffers are set at 10m for all ponds, extending to 50m for ponds with confirmed evidence of great crested newts, or where surveys for great crested newts have not yet been possible for any reason.

9.10.238 Potential impacts upon amphibians during the construction phase may include terrestrial habitat degradation and terrestrial habitat loss should any clearance of hedgerows or other field boundary habitats be required for access or cable trenching, although this is likely to be very limited as the intention is to use existing field accesses wherever possible. These impacts are likely to be avoided through the retention and incorporation of generous ecological buffer zones around the most suitable terrestrial habitats for amphibians during construction and operation and maintenance of the Scheme, generally measuring wider than existing field margins.

9.10.239 Where new hedgerow breaches for site access at the Solar PV Sites are required, some habitat loss can be expected, As discussed under section 9.10.137 above, these hedgerow losses constitute a very small proportion of the overall hedgerow network, and as such there will be no significant loss of habitat for amphibians in the context of the Scheme. Where new hedgerow breaches for site access are required, the lengths involved (typically 3.5-6 m) are considered highly unlikely to significantly fragment habitats for amphibians. As a result, **no significant adverse effects** on the extent or connectivity of terrestrial habitats for amphibians are anticipated as a result of the Scheme.

9.10.240 Groundworks associated with the construction phase may result in the accidental direct harm to individual amphibians, should they be present within working areas. In the absence of additional mitigation measures, the accidental killing/injury of amphibians (including great crested newts) during the construction phase would likely result in a **significant adverse effect** at the **Local** level, although clearly the magnitude of this impact would depend on the extent to which amphibians were killed/injured during construction.

9.10.241 A number of ponds are present within the Cable Route Corridor and up to 250m beyond. Although all ponds within the Cable Route Corridor are expected to be retained and not directly impacted by cable installation works. However, it can be expected that suitable terrestrial habitat within the Cable Route Corridor, such as hedgerows, grasslands and field margins will be temporarily lost,

although will be reinstated on completion or works. In the absence of mitigation such habitat removal may result in killing or injury of individual amphibians. Great crested newt surveys have not been completed for ponds along the Cable Route Corridor, as it is intended to register the Cable Route Corridor under District Level Licensing, and therefore the potential populations of great crested newts present within the Scheme are currently unknown.

Operation and Maintenance Phase Impacts

9.10.242 Adverse impacts on amphibians during the operation and maintenance of the Scheme are likely to be minimal, considering the adoption of ecological buffer zones and the restriction of development and vehicle movement to outside of these areas, save for habitat management operations. Embedded mitigation measures to avoid impacts on key habitats described for the construction phase, including implementation of buffer zones and pollution prevention measures, will also apply during operational replacement of panels and batteries and are set out in the OEMP. **No significant adverse impacts** on amphibians are anticipated to arise during the operation and maintenance phase

9.10.243 There will be a net increase in the extent and quality of terrestrial habitats for amphibians within the Solar PV Sites as a result of the Scheme, with grassland habitats to be provided both within buffer zones as well as beneath panels anticipated to provide habitat of higher value for amphibians than land under arable production, which comprises the majority of land at the Solar PV Sites. This will provide enhanced amphibian habitat for the lifetime of the Scheme, as a minimum. Other proposed landscape measures, such as the encouragement of tussocky grassland and scattered scrub would also be expected to provided enhanced habitat compared to baseline conditions.

9.10.244 When considering the above embedded mitigation measures, the retention and favourable management of the ponds and surrounding terrestrial vegetation, as well as the reversion of arable land within the Scheme to grassland, is likely to result in a long-term **beneficial effect** for amphibians, which would be **significant** at the **Local** level.

Enhancement Measures

9.10.245 Opportunities to create new areas of standing water within the Scheme have been explored, with ten proposed locations for pond creation being outlined on the **Landscape and Ecology Mitigation Plan [EN010168/APP/6.2]**. The proposed locations have been based on topographical information and historic mapping, with nine of the proposed locations being located at historic farm ponds which have been filled in previously (also known as ‘ghost’ ponds), and

are generally based in close proximity to watercourses or in other habitats which are known to be damp/wet. Any ponds created would be constructed in accordance with the prescriptions detailed in the **Outline LEMP [EN010168/APP/7.18]** and thereafter would be managed for the benefit of wildlife for the duration of the Scheme. These indicative pond locations will be located outside of the development area and within other habitats of value for amphibians, such as permanent grassland. The creation of new ponds would likely result in a **significant beneficial effect** on the extent of standing water habitat for amphibians within the Scheme, which would likely be significant at a **Site to Local level**, depending on how many of the indicative pond locations are likely to be successful and whether the ponds successfully establish.

9.10.246 Specific habitat features such as log piles and hibernacula, as well as habitat management prescriptions, have been incorporated into the **Outline LEMP [EN010168/APP/7.18]** in locations within the Sites considered to be of greatest value to amphibians.

Reptiles

Construction Phase Impacts

9.10.247 The vast majority of the land on which the Scheme will be sited, namely arable fields and agricultural grassland, represent habitat of poor habitat quality for reptiles. More suitable habitat is generally confined to narrow uncultivated arable field margins, occasional fields of tussocky grassland, hedgerow bases and small areas of woodland edge.

9.10.248 Potential impacts upon reptiles during the construction phase may include habitat degradation and loss, although these impacts will be avoided in the main through the retention and incorporation of generous ecological buffer zones around the most suitable habitats for reptiles during construction and operation and maintenance of the Scheme.

9.10.249 Impacts may be felt where clearance of hedgerows or other field boundary habitats is required for access or cable trenching, although this is limited given that existing field accesses have been utilised wherever possible. As discussed under section 9.10.137 above, these hedgerow losses constitute a very small proportion of the overall hedgerow network, and as such there will be no significant loss of habitat for reptiles in the context of the Scheme. Where new hedgerow breaches for site access are required, the lengths involved (typically 3.5-6 m) are considered highly unlikely to significantly fragment habitats for reptiles. Furthermore, the retention of the likely most suitable habitats at the Solar PV Sites (such as tussocky grassland field margins and woodland/scrub edge) has been incorporated into the design of the Scheme from an early stage.

As a result, **no significant adverse effects** on the extent of terrestrial reptile habitats are anticipated as a result of the Scheme.

9.10.250 Groundworks associated with the construction phase may result in accidental direct harm (killing or injury) to individual reptiles, should they be present within working areas. In the absence of additional mitigation measures, the accidental killing/injury of reptiles during the construction phase would likely result in a **significant adverse impact** at the **Site** level, given that the majority of habitats likely to be affected during construction are sub-optimal for reptiles.

Operation and Maintenance Phase Impacts

9.10.251 Adverse impacts on reptiles during the operation and maintenance of the Scheme are likely to be minimal, considering the adoption of ecological buffer zones and the restriction of development and vehicle movement to outside of these areas, save for habitat management operations. Embedded mitigation measures to avoid impacts on key habitats described for the construction phase, including implementation of buffer zones and pollution prevention measures, will also apply during operational replacement of panels and batteries and are set out in the OEMP. **No significant adverse impacts** on reptiles are anticipated to arise during the operation and maintenance phase

9.10.252 There will be a net increase in the extent and quality of terrestrial habitats for reptiles within the Solar PV Sites as a result of the Scheme, with grassland habitats to be provided both within buffer zones as well as beneath panels anticipated to provide habitat of higher value for reptiles than land under arable production, which comprises the majority of land at the Solar PV Sites. If managed correctly and as prescribed within the **Outline LEMP [EN010168/APP/7.18]**, this will provide enhanced reptile habitat for the lifetime of the Scheme, as a minimum. Other proposed landscape measures, such as the encouragement of tussocky grassland and scattered scrub would also be expected to provide enhanced habitat compared to baseline conditions.

9.10.253 When considering the above embedded mitigation measures, **no significant adverse effects** on reptiles are anticipated to arise during the operational phase. The retention and favourable management of areas of tussocky grassland and field margins, as well as the reversion of arable land within the Scheme to permanent grassland, is likely to result in a long-term **beneficial effect** for reptiles, which would be **significant** at the **Local** level.

Enhancement Measures

9.10.254 Specific habitat features such as log piles and hibernacula, as well as habitat management prescriptions, have been incorporated into the **Outline LEMP [EN010168/APP/7.18]** in locations within the Sites considered to be of greatest

value to reptiles. While these would provide new shelter and basking opportunities for reptiles, they are not anticipated to result in a significant beneficial effect compared to baseline levels.

Breeding Birds

9.10.255 Birds breeding within the Scheme can be divided into two different categories; namely ground nesting birds that potentially breed within the open fields, and which require open sightlines for predator avoidance during nesting, and other bird species which nest within boundary vegetation such as hedgerows, trees and scrub. This assessment will separately assess the impacts on ground nesting birds and other breeding birds, as the proposals are likely to affect these two different categories in distinct ways.

Ground Nesting Birds of Open Farmland - Construction Phase Impacts

9.10.256 Installation of Solar PV Panels and BESS Area will, most likely, displace ground-nesting bird species which preferentially nest in open habitats with long sightlines. Through surveys undertaken at the [redacted], species of conservation concern identified as likely to be most impacted by development of the open habitats are skylark and yellow wagtail. Preliminary territory analysis indicates that 164 skylark territories are present within the [redacted]. Territory numbers are considerably smaller for yellow wagtail (estimated 3 territories), and this species also has a more restricted distribution through the [redacted], thought to be breeding at [redacted] Both of these species are considered likely to be displaced to a significant degree owing to the imposition of tall structures and other hardware into the arable fields. Yellow wagtail may stand to be displaced the least as they are believed to be able to nest in taller habitats and with shorter sightlines. Displacement may lead to population fragmentation and increased intra-specific pressures on surrounding arable and grassland habitat which may be at, or approaching, carrying capacity. In the absence of additional mitigation, the above species would be permanently (for the lifetime of the Scheme) displaced, which would likely constitute a **significant adverse effect** at a **District** level. It is noted that the assumed number of skylark and yellow wagtail territories represents a likely reasonable average number of territories in a given year, as the number of territories is likely to fluctuate year-on-year, particularly in response to rotational arable farming practices.

9.10.257 Corn bunting, grey partridge and quail are additional ground-nesting species which were recorded within the Solar PV Sites. These species are more likely to be found nesting towards the edges of fields, and within hedgerows and ditch banks, although not exclusively. It is considered that the nest habitat

requirements of these species are less particular than those above as they are able to exploit scrub, woodland-edge and field boundary habitats and therefore are likely to persist, at least to a moderate degree, within the developed Scheme. The establishment of wide margins from boundaries as part of the proposals will also serve to improve potential nesting and foraging habitats at the edge of the arrays. Impacts of solar development on these species are largely unknown, therefore a precautionary approach should be taken, and a moderate level of displacement is assumed in the absence of additional mitigation. This would likely constitute a **significant adverse effect** at the **Local** level.

9.10.258 A temporary loss of available foraging habitat will occur during construction for breeding birds of open habits, although this impact will not be felt across the entire Scheme in synchrony, due to the progressive nature of construction. This would likely constitute a temporary **significant adverse effect** at the **Site** level.

9.10.259 There is the potential for accidental mortality to these birds during site clearance or preparation procedures at the onset of construction, for both the array and cable routes. Quail also receive protection from disturbance when nesting owing to their Schedule 1 status under the Wildlife & Countryside Act, and works may disturb this species if conducted during the nesting season. The **Outline EPMS [EN010168/APP/7.19]** details nest avoidance precautions to be taken during the construction phase at both the Sites and within the Cable Route Corridor. These will comprise measures such as seasonally timed working, the presence of an Ecological Clerk of Works and the setting up of exclusion zones around nesting sites. The temporary nature of the cable installation means disturbance would be very time-limited for any particular location. Similarly, the very limited land-take of the cable installation means that the likelihood of encountering nests is low. When considering the above embedded mitigation measures, it is considered that the likelihood of individual mortality occurring during the construction phase is very low, and therefore this effect could likely be reduced to **neutral and non-significant** levels.

Ground Nesting Birds of Open Farmland - Operation and Maintenance Phase Impacts

9.10.260 During the operational phase of the Scheme, further impacts on these bird species are likely to be limited as displacement will have occurred at the construction phase. However, it is important to note that while nesting by skylark and yellow wagtail stands to decline significantly within the Sites, the reversion of arable land to diverse, low-input grassland within the solar array fields, which is managed relatively infrequently, is likely to increase the abundance of invertebrate prey items for skylark and yellow wagtail markedly. A mosaic of

grassland management is specified in the **Outline LEMP [EN010168/APP/7.18]** and will be employed for maximum benefit to biodiversity. Skylark and yellow wagtail regularly forage tens or hundreds of metres away from nesting sites and both have been recorded foraging on active solar arrays. Therefore, displacement effects are expected to be counteracted to an extent by the increased foraging potential of the operational array Sites.

9.10.261 Corn bunting, grey partridge and quail are likely to benefit from the creation of wider field margins through the imposition of undeveloped buffer zones which will be significantly wider than at present. These buffer zones will be subject to various management regimes to provide a range of food resources and shelter areas. This will substantially increase both the suitability and abundance of habitat for foraging and nesting by these birds.

9.10.262 Grassland cuts will be timed sensitively to ensure that forage is available to ground-nesting birds across the breeding season. Similarly, management of offsetting fields for nesting birds, whether grassland or set-aside, will be managed to avoid impacts to nesting birds during the breeding season. This is detailed in the **Outline LEMP [EN010168/APP/7.18]**.

9.10.263 For all species, enhanced foraging opportunities are expected to provide a **significant beneficial effect** at least at the **Site** level. Over time, once new habitats have established, the magnitude of beneficial effects associated with increased foraging opportunities will be increased and may rise to a **Local** level.

Other Breeding Birds - Construction Phase Impacts

9.10.264 All birds, their nests, eggs and young, are protected from damage/ killing/ injury. Numerous species were recorded by the surveys which nest within the boundary habitats in and around the [redacted] and as such are capable of being harmed by accidental damage or degradation of nesting habitat, or by certain habitat clearance activities, either to facilitate access onto the array Sites or cabling works. Key species of conservation concern which may be impacted include: bullfinch, cuckoo, dunnock, greenfinch, kestrel, linnet, mistle thrush, reed bunting, rook, song thrush, sparrowhawk, stock dove, whitethroat, woodpigeon, willow warbler, wren and yellowhammer.

9.10.265 Additional species are protected from disturbance when nesting under Schedule 1 of the Wildlife & Countryside Act. Additional species are protected from disturbance when nesting under Schedule 1 of the WCA. Such species recorded during surveys, which may nest in woodland or within buildings in and around the Solar PV Sites include: barn owl, hobby, and red kite. Suitable habitat is also present at watercourses at the Solar PV Sites for the Schedule 1 species kingfisher.

9.10.266 Given the similarity of habitats within the Cable Route Corridor to those at the Solar PV Sites, a similar assemblage of birds of conservation concern and Schedule 1 species can be expected to be present or potentially present within the Cable Route Corridor.

9.10.267 Accidental damage to nesting habitat, or degradation through pollution events, would be avoided through the adoption of protective buffer zones from the outset of construction. This will also limit the degree of disturbance from construction activities. Where habitat clearance works are required, the **Outline EPMS [EN010168/APP/7.19]** details measures to be taken to ensure that nesting birds are not harmed. This will involve sensitive timing of habitat removal works, or else briefing talks to all construction staff and pre-commencement nesting bird inspections by an Ecological Clerk of Works, with protection of identified, active nests. As a result, no significant effects associated with killing or injury of nesting birds are anticipated.

9.10.268 The **Outline EPMS [EN010168/APP/7.19]** details additional measures to be taken to ensure that Schedule 1 bird species are not disturbed while nesting. This will involve sensitive timing of works in proximity to known or likely nesting sites (including minor hedgerow removal for access or cabling), pre-commencement and regular monitoring by an Ecological Clerk of Works, briefing talks to all construction staff, adopting HDD for cabling under watercourses suitable for kingfisher, and the enhanced buffering from development of certain buildings or trees confirmed or likely to contain nesting sites. Any construction-phase impacts would be expected to be temporary and felt at a site level. Likewise, any effects would be temporary and non-significant.

9.10.269 Losses of hedgerow habitat at the Solar PV Sites and within the Cable Route Corridor will reduce the extent of nesting, sheltering and foraging habitats within the Order Limits. However, permanent losses across the Solar PV Sites are not anticipated to cause a cumulative impact on the breeding birds which use them, as individual losses are limited to 3.5-6m lengths and, as discussed under section 9.10.137, these hedgerow losses constitute a very small proportion of the overall hedgerow network. As a result, **no significant effects** associated with the loss of hedgerow habitat at the Solar PV Sites are anticipated.

9.10.270 Permanent loss of suitable habitat for breeding birds with the Cable Route Corridor is not anticipated as habitats will be reinstated on completion of the cable installation works. However, as there will be a time lag between removal of hedgerows and the subsequent establishment and development of hedgerows to achieve comparable functionality and value to breeding birds, there will be a consequent reduction in habitat quality and integrity within the Cable Route Corridor. This will be a short to medium term impact and has the

potential to result in **significant adverse effects** on breeding birds at the **Site** level.

9.10.271 Consideration has been given to the potential impact of noise generated from tracking Solar PV Panels on birds which may forage and use land next to and beneath panels during the operation and maintenance phase. As stated in **Chapter 3: The Scheme [EN010168/APP/6.1]**, at this stage it is considered likely that the Scheme will utilise tracking Solar PV Tables which are attached to a motorised table to move in relation to the position of the sun throughout the day. The tracking motors typically generate sound power levels of 40-50 dB at source, which are approximately equivalent to a quiet refrigerator hum for human hearing, with sound power levels being lower than this away from the immediate vicinity of the motor. This is a low level of noise, which is generated for very limited periods throughout the day, and overall are anticipated to have **no significant impacts** on birds using land within the operational Solar PV Site.

Other Breeding Birds - Operation and Maintenance Phase Impacts

9.10.272 Owing to the use of development free buffer zones from the onset of construction, it is considered unlikely that the habitats within which these birds nest will be degraded through the presence of the adjacent arrays. Similarly, the temporary nature of the cabling work means that once cabling is complete, no impacts are anticipated.

9.10.273 Habitat management works and maintenance activities will be timed sensitively, as detailed in the **Outline LEMP [EN010168/APP/7.18]**, to avoid impacts on nesting birds and to ensure foraging resources are available across the breeding season.

9.10.274 The **Outline LEMP [EN010168/APP/7.18]** details various habitat creation and management prescriptions to be applied as a mosaic within the buffer zones and panelled areas. The reversion of the arable land to a patchwork of grassland types, and the widening of uncultivated margins, will increase the availability of seed and invertebrate food for a wide variety of bird species. Recent research has shown that, when managed appropriately, ground-mounted solar arrays can result in an increase in bird species in terms of abundance and diversity of species (Ref 9-69).

9.10.275 The **Outline LEMP [EN010168/APP/7.18]** also contains details of the extensive additional planting of new hedgerows, trees and other woody vegetation across the Solar PV Sites boundaries as part of Biodiversity Net Gain proposals, which will increase nesting and foraging opportunities for numerous bird species.

9.10.276 With the creation of a wide range of habitats which will offer nesting and foraging opportunities across the Solar PV Sites, a net gain in nesting and foraging habitat will be achieved. Across the Sites, this is expected to lead to a **residual significant beneficial effect** at a **Local** level.

Enhancement Measures

9.10.277 The addition of bespoke features which provide nesting opportunities for various target bird species has been included in the **Outline LEMP [EN010168/APP/7.18]**. Locations will make use of trees and structures across the Solar PV Sites.

Overwintering Birds

9.10.278 The potential for, and severity of, impacts on overwintering birds depends on the timing of construction activities. It is assumed that, with a c.24 month build programme (as per **Chapter 3: The Scheme [EN010168/APP/6.1]**), working over the winter months will be unavoidable. Consequently, there remains the risk that flocks of thrushes, larks, and finches which have been recorded at the Solar PV Sites will be dissuaded from areas of the Site or Cable Route Corridor which they might ordinarily use on an occasional basis for foraging and shelter. This impact is unavoidable although will be short term and temporary in nature.

9.10.279 Baseline levels of disturbance associated with regular farming activity at the Solar PV Sites mean that bird populations are likely to be, to a degree, habituated to disturbance from regular farming practices within the Solar PV Sites. However construction will last longer than typical farming activities and there will be an increase in levels of noise and human activity. During surveys undertaken to at the Solar PV Sites between 2023 and 2025, there has been no strong association of land at the Solar PV Sites with wintering bird species likely to be particularly sensitive to disturbance impacts, such as flocks of wildfowl, waders or geese. Any additional impacts from disturbance posed by construction would be expected to result in **significant adverse effects** at the **Site** level only.

9.10.280 There will be a temporary loss of foraging areas in the form of open fields for overwintering birds within the local landscape whilst construction is ongoing. This will impact a relatively small number of species which rely on open fields for foraging rather than those which predominantly use field boundary habitats, as field boundaries will be largely retained and safeguarded with adequately protective buffers as part of embedded mitigation. There is a considerable extent of similar open habitat in the vicinity, and the habitats within the Order Limits were generally not seen to be of elevated importance compared to their surroundings. As such, alternative foraging opportunities exist for birds in the

local landscape and any temporary loss of foraging areas of open farmland is considered to result in a **neutral** and **non-significant** effect.

9.10.281 Losses of hedgerow habitat at the Solar PV Sites and within the Cable Route Corridor will reduce the extent of sheltering and foraging habitats within the Order Limits for species of overwintering birds which rely on such habitats. However, permanent losses across the Solar PV Sites are not anticipated to cause a cumulative impact on the overwintering birds which use them, as individual losses are limited to 3.5-6 m lengths and, as discussed under section 9.10.137, these hedgerow losses constitute a very small proportion of the overall hedgerow network. As a result, **no significant effects** associated with the loss of hedgerow habitat at the Solar PV Sites are anticipated.

9.10.282 Permanent loss of suitable habitat for breeding birds with the Cable Route Corridor is not anticipated as habitats will be reinstated on completion of the cable installation works. However, as there will be a time lag between removal of hedgerows and the subsequent establishment and development of hedgerows to achieve comparable functionality and value to overwintering birds, there will be a consequent reduction in habitat quality and integrity within the Cable Route Corridor. This will be a short to medium term impact and has the potential to result in **significant adverse effects** on overwintering birds at the **Site** level.

Operation and Maintenance Phase Impacts

9.10.283 All overwintering bird species of boundary habitats would be expected to continue to forage within the operational Solar PV Sites. Disturbance to these species during the winter months would also be minimal. Hedgerow/ woodland management activities, enshrined in the **Outline LEMP [EN010168/APP/7.18]**, will be timed sensitively to ensure the provision of foraging resources throughout the winter months. This includes the cutting of hedgerows late in the winter period, and on a rotation basis, to ensure seeds, nuts and berries remain available throughout the winter. Substantial new habitat creation, including extensive hedgerow planting, in combination with diverse grassland and buffer zones, will improve foraging resources relative to baseline levels for these species. With these measures, a **significant beneficial effect** would be expected at a **Local** level on overwintering birds of boundary habitats.

9.10.284 Consideration has been given to the potential impact of noise generated from tracking Solar PV Panels on overwintering birds which may forage and use land next to and beneath panels during the operation and maintenance phase. As stated in **Chapter 3: The Scheme [EN010168/APP/6.1]**, at this stage it is considered likely that the Scheme will utilise tracking Solar PV Tables which are attached to a motorised table to move in relation to the position of the sun

throughout the day. The tracking motors typically generate sound power levels of 40-50 dB at source, which are approximately equivalent to a quiet refrigerator hum for human hearing, with sound power levels being lower than this away from the immediate vicinity of the motor. This is a low level of noise, which is generated for very limited periods throughout the day, and overall are anticipated to have **no significant effects** on birds using land within the operational Solar PV Site

Terrestrial Invertebrates

Construction Phase Impacts

9.10.285 The hedgerows, mature trees, woodland edges, other neutral grassland fields and uncultivated field margins within the Order Limits were relatively higher in value to invertebrates than the cultivated arable land and modified grassland which dominates the majority of the Order Limits . However, the presence of a notable assemblage of invertebrates is considered unlikely as these habitats are either limited in extent or subject to degradation from agricultural activities, such as dust deposition/ runoff and spray drift from herbicide and pesticide applications.

9.10.286 The nature of the proposals is such that field boundary habitats including uncultivated field margins, hedgerows and woodland edges will be retained by and large in their entirety, with Solar PV development activities taking place within the fields, aside from a relatively small loss of the hedgerow network in discrete locations as set out in section 9.10.137. Furthermore, suitable buffers will be implemented around in-field trees and ponds. As a result, no significant adverse effects on terrestrial invertebrates associated with habitat loss are anticipated.

9.10.287 Works within the Cable Route Corridor will impact a number of short (typically 10 – 12 m wide) individual sections of hedgerow and field boundary habitats temporarily, before being reinstated. Where non-arable vegetation is removed from the Site, there is a minor risk for adverse impacts on the assemblage of invertebrate species associated with these features, although the suitability of habitat for invertebrates within the Order Limits is generally low or of little conservation significance. As a result, **no significant adverse effects** on terrestrial invertebrates during the construction phase are currently anticipated.

9.10.288 Construction activities may result in dust/sediment deposition, leading to degradation of the varied retained habitats at the field boundaries, including grassland field margins, woodland edge, hedgerows, which were considered to be the most value habitats within the Order Limits for terrestrial invertebrates. These effects are only likely to be temporary and are likely to be of a similar

scale and severity as that arising from current baseline agricultural activities.. However, the imposition of fenced buffer habitats during construction (and beyond) will minimise the potential likelihood and severity of these impacts occurring. The **Outline EPMS [EN010168/APP/7.19]** and **Outline CEMP [EN010168/APP/7.12]** set out additional measures to minimise the risk of pollution, run-off and dust deposition impacts on the boundary habitats during construction. Given the above embedded mitigation measures, it is considered that any significant habitat degradation during the construction phase can be avoided, and **no significant adverse effects** are anticipated through this potential pathway.

Operation and Maintenance Phase Impacts

9.10.289 Embedded mitigation measures to avoid impacts on key habitats described for the construction phase, including implementation of buffer zones and pollution prevention measures, will also apply during operational replacement of panels and batteries and are set out in the OEMP.

9.10.290 The cessation of intensive arable farming practices (particularly insecticide spraying) and reversion of the land to grassland (for at least the duration of the Scheme) can be expected to result in increased diversity and abundance of both terrestrial invertebrates at the operational Site. This includes a number of pollinating butterfly and bee species which have been shown to have increased diversity and abundance in solar arrays compared to control plots (Ref 9-23).

9.10.291 Moreover, the creation of diverse habitats within buffer zones and sensitive management of both retained and new habitats, as detailed in the **Outline LEMP [EN010168/APP/7.18]**, will result in a greater extent of higher-value habitat for terrestrial invertebrates. Given the large extent of habitat that will likely increase in quality, the operation and maintenance impacts of the development will have beneficial effects on a range of invertebrates. This effect may be expected to be a **significant beneficial** effect at a **Site** level.

Enhancement Measures

9.10.292 Alongside the general betterment of habitat quality and diversity for invertebrates, resulting from the sowing of diverse grass seed mixes and planting of new trees and shrubs, bespoke measures will be implemented to target local conservation priority species, including barberry carpet moth *Pareulype berberat*.

9.10.293 Barberry carpet moth larvae exclusively feed on leaves of barberry *Berberis vulgaris*, a shrub which was largely eradicated from large areas of the UK from the 19th century onwards, as a consequence of it being discovered to be an alternate host of the wheat stem rust fungus which attacks wheat and related

crops. As a result, there are believed to be only twelve viable populations of barberry carpet moth left in England, with Wiltshire and particularly the area around Hullavington being a stronghold for this species.

9.10.294 The Scheme design and measures within the **Outline LEMP [EN010168/APP/7.18]** contain provision for planting of barberry shrubs in several area of the Solar PV Sites (as part of 'low-density scrub planting') as well as ongoing aftercare and sensitive management of shrubs, for instance to avoid cutting when caterpillars are likely to be present. These measures have been proposed following consultation with Butterfly Conservation on how the Scheme can deliver enhancements for barberry carpet moth.

9.10.295 Other features such as dead-wood piles and beetle banks will be installed to provide additional shelter, foraging and breeding opportunities for a range of invertebrates.

White-clawed Crayfish

Construction Phase Impacts

9.10.296 White-clawed crayfish may be impacted through direct harm or disturbance during any construction activity directly affecting ditches and watercourses. This includes the creation of new accesses and internal access tracks, where these do not use existing culverts/ditch crossing points. The Scheme has been designed to utilise existing access points and culverts to cross between fields as much as possible, however new culverts will be required where existing accesses and tracks are not suitable for vehicle movements during the construction phase, as set out in the crossing schedule, provided in **ES Volume 3, Appendix 11.1: Flood Risk Assessment and Drainage Strategy Covering Report [EN010168/APP/6.3].**

9.10.297 Suitable habitat for white-clawed crayfish is provided by the Gauze Brook and Gabriel's Well watercourses and connected ditches at Solar PV Sites Lime Down D and E, although are considered to be absent from within the remaining Solar PV Sites which contain ditches that are regularly dry during the summer months and not suitable for this species.

9.10.298 Several temporary crossings for cable route installation works will be required within the Cable Route Corridor. Trenchless technologies (e.g. HDD) will be adopted to cross watercourses typically of highest suitability and connectivity for white-clawed crayfish within the Cable Route Corridor to minimise impacts, although several watercourses with at least some suitability are proposed to be crossed via open-cut trenching. In the absence of mitigation, individual white-clawed crayfish may be impacted through direct harm during any construction

activity affecting ditches, watercourses and associated bank top habitats within the Solar PV Sites and the Cable Route Corridor. This would potentially result in **significant adverse effects** at the **Local** level.

9.10.299 The relatively short width (up to 6m) of any new permanent or temporary crossings required is not anticipated to result in any significant fragmentation effects on the local ditch/watercourse network. These widths are representative of the numerous culverts and land bridges present across the ditch network at the Order Limits, typically to provide farm access. Therefore **no significant effects** arising from potential fragmentation of habitat for white-clawed crayfish are considered likely to occur.

9.10.300 Construction activities may result in dust/sediment deposition, leading to degradation of aquatic habitats potentially inhabited by white-clawed crayfish, including watercourses and ponds. These effects are only likely to be temporary and are likely to be of a similar scale and severity as that arising from current baseline agricultural activities, although impacts could be felt in the long term if aquatic habitats are seriously affected. However, the imposition of fenced buffer habitats during construction (and beyond) will minimise the potential likelihood and severity of these impacts occurring. The **Outline EPMS [EN010168/APP/7.19]** and **Outline CEMP [EN010168/APP/7.12]** set out additional measures to minimise the risk of pollution, run-off and dust deposition impacts on aquatic habitats during construction. Given the above embedded mitigation measures, it is considered that any significant habitat degradation during the construction phase can be avoided, and **no significant adverse effects** are anticipated through this potential pathway.

9.10.301 White-clawed crayfish populations are severely impacted by the introduction of American signal crayfish *Pacifastacus leniusculus*, which outcompete native crayfish and carry a fungal disease (known as crayfish plague) which is fatal to white-clawed crayfish. Construction activities are however not anticipated to result in the spread of American signal crayfish. This is further discussed under Invasive and Non-Native Species below.

Operation and Maintenance Phase Impacts

9.10.302 Operational impacts are expected to be minimal as vehicle movements will be infrequent and limited, taking place outside of the observed buffer zones, or only at designated access points which cross watercourses. This will significantly limit the risk of pollution and damage impacts. Embedded mitigation measures to avoid impacts on key habitats described for the construction phase, including implementation of buffer zones and pollution prevention measures, will also apply during operational replacement of panels and batteries and are set out in the OEMP.

9.10.303 The **Outline LEMP [EN010168/APP/7.18]** will secure the favourable management of the site's buffer zones for the duration of the Scheme, thereby maintaining and potentially enhancing the habitat quality of ditches within and adjacent to the Scheme boundary. A beneficial effect may be possible through the favourable management of ditches and watercourses, to make previously sub-optimal ditches more favourable for white-clawed crayfish. Cessation of arable activities will also reduce runoff and would be expected to improve watercourse quality in the immediate vicinity of the Solar PV Sites.

9.10.304 As a result of embedded mitigation measures, **no significant effects** on white-clawed crayfish arising from routine management during the operation and maintenance phase are anticipated.

Freshwater Fish

Construction Phase Impacts

9.10.305 It should be highlighted that impacts on fish species associated with the Severn Estuary Ramsar, including eels and sea trout, are discussed under the 'Severn Estuary Ramsar' subheading above and not detailed here, to avoid repetition.

9.10.306 The majority of watercourses present within the Order Limits comprise seasonally dry ditches which are unsuitable for fish in general, typically being regularly dry or holding shallow water with no flow, as well as being heavily modified and poorly connected to other more suitable watercourse. However, watercourses within the Solar PV Sites (namely Gauze Brook and Gabriel's Well, in Lime Down D and E respectively) are tributaries of the River Avon and offer suitable habitat for several fish species. Several watercourses with the Cable Route Corridor also potentially support protected and notable fish species. Any required crossings at these have the potential to harm, cause mortality, or hinder movement of fish.

9.10.307 The Scheme will avoid and minimise direct impacts upon watercourses by utilising existing crossings for access wherever possible. No new crossings for access are required at any watercourses identified as potentially suitable for fish. A crossing schedule (**ES Volume 3, Appendix 11.1: Flood Risk Assessment and Drainage Strategy Covering Report [EN010168/APP/6.3]** refers) has been prepared detailing the location and type of crossings proposed for both cables and access. It is possible that an existing vehicular crossing at Gabriel's Well may need to be improved to ensure it meets construction/operation and maintenance vehicle requirements (SM4 on the crossing schedule refers). Any new or improved crossing here will be an open-span structure, with no incursion into the channel ensuring no impediment to movement of fish.

9.10.308 Due also to the imposition of construction buffer zones of at least 8m from ditches, the likelihood of impacts on freshwater fish from vibration, noise or light spill within the Solar PV Sites is considered to be negligible.

9.10.309 Several other temporary crossings for cable route installation works will be required within the Cable Route Corridor. Trenchless technologies (e.g. HDD) will be adopted to cross watercourses typically of highest suitability and connectivity for fish within the Cable Route Corridor to minimise impacts, and certainly for any watercourses deemed likely to support migratory fish such as eels and seas trout, as described under the 'Severn Estuary Ramsar' subheading above. While this is far preferable to any cable installation which might involve any direct harm to the riverbeds themselves, a small risk remains of vibrations leading to noise, sediment mobilisation, or the emission of pollutants. Such impacts are likely to be felt in the short to medium term, depending on severity. The **Outline EPMS [EN010168/APP/7.19]** and **Outline CEMP [EN010168/APP/7.12]** prescribe precautionary working methods surrounding the installation of the cables and the minimisation of risks associated with HDD. This includes visual monitoring for discharge of sediments, monitoring for vibrations, suitable depth settings and precautionary siting of entry and exit pits.

9.10.310 A small number of watercourses with at least some suitability for non-migratory fish (such as brown trout or bullhead) may be crossed via open-cut trenching. In the absence of mitigation therefore, fish may be impacted through direct harm or disturbance where open-cut trenching is used at watercourse crossing points within the Cable Route Corridor. This would potentially result in **significant adverse impacts** at the **Site** level.

9.10.311 Construction activities may result in dust/sediment deposition, leading to degradation of aquatic habitats potentially inhabited by fish, including watercourses and ponds. These effects are only likely to be temporary and are likely to be of a similar scale and severity as that arising from current baseline agricultural activities, although impacts could be felt in the long term if aquatic habitats are seriously affected. However, the imposition of fenced buffer habitats during construction (and beyond) will minimise the potential likelihood and severity of these impacts occurring. The **Outline EPMS [EN010168/APP/7.19]** and **Outline CEMP [EN010168/APP/7.12]** set out additional measures to minimise the risk of pollution, run-off and dust deposition impacts on aquatic habitats during construction. Given the above embedded mitigation measures, it is considered that any significant habitat degradation during the construction phase can be avoided, and **no significant adverse effects** are anticipated through this potential pathway.

Operation and Maintenance Phase Impacts

9.10.312 Operational impacts are expected to be minimal as vehicle movements will be infrequent and limited, taking place outside of the observed buffer zones, or only at designated access points which cross watercourses. This will significantly limit the risk of disturbance, pollution and damage impacts. Embedded mitigation measures to avoid impacts on key habitats described for the construction phase, including implementation of buffer zones and pollution prevention measures, will also apply during operational replacement of panels and batteries and are set out in the OEMP.

9.10.313 As a result of embedded mitigation measures, **no significant effects** on fish arising from routine management during the operation and maintenance phase are anticipated.

9.10.314 Measures prescribed in the **Outline LEMP [EN010168/APP/7.18]** will secure the favourable management of the site's buffer zones for the duration of the Scheme, thereby maintaining and potentially enhancing the habitat quality of watercourses within and adjacent to the Order Limits. Cessation of arable activities will also reduce runoff and would be expected to improve watercourse quality in the immediate vicinity of the Solar PV Sites. This is likely to lead to a **significant beneficial effect** at the **Site** level.

Plants (including Arable Weeds)

Construction Phase Impacts

9.10.315 Surveys have revealed the presence of several notable plants within the Solar PV Sites, including threatened arable plants such as shepherd's needle and rye brome. In the absence of additional mitigation, these species would likely be permanently (for the duration of the Scheme) lost from the Solar PV Sites through the cessation of arable cultivation and the seeding and management of grassland in place of arable habitats, although some species may persist. This would likely constitute a **significant adverse effect** at the **Local** level.

9.10.316 Where other individual notable plant species may be present, such as in hedgerows, woodland and grassland, these habitats will be retained and protected with undeveloped buffer zones. Any losses of hedgerow for access will constitute a relatively small proportion of the hedgerow network and the likelihood of impacts to notable plant species is very low and **not significant.**

9.10.317 The habitats within the Cable Route Corridor are very similar to those within the Sites, and are characteristic of the local (predominately arable) landscape. There is therefore the potential for some notable plant species to be present within the Cable Route Corridor, such as in arable field margins or species-rich

grasslands. The siting of the Cable Route Corridor has taken into account the presence of any habitats which are likely to contain notable plant species or communities (particularly designated sites such as Local Wildlife Sites and Priority Habitats), and avoided these wherever possible, with no Local Wildlife Sites present. Where Priority Habitats have been identified and remain within the Cable Route Corridor, all efforts will be taken to avoid/minimise impacts on these habitats/communities, through amending the construction methodology used in a particular area or ensuring habitat can be reinstated on completion of temporary cable installation works (section 9.10.138 refers). With the above embedded mitigation measures, it is considered that effects potentially arising from this impact pathway can be reduced to **neutral, non-significant levels**.

Operation and Maintenance Phase Impacts

9.10.318 The routine operation and maintenance of the Scheme will not entail any significant harmful activities to notable plants. Management activities, such as grass and hedgerow cutting, will be timed sensitively to ensure that plants can flower and set seed, as specified in the **Outline LEMP [EN010168/APP/7.18]**.

9.10.319 Additionally, the cessation of intensive arable farming practices (particularly herbicide spraying) and reversion of the land to permanent grassland (for at least the duration of the Scheme) can be expected to result in an increase in the overall diversity of plant species within the Order Limits, and may facilitate the establishment of a number of notable species.

9.10.320 **No significant adverse effects** on plants are anticipated during operation and maintenance of the Scheme. It is possible that with the establishment of new habitats, the incidence of notable plant species across the Sites will increase although this assessment assumes there will be a **neutral, non-significant effect**.

Enhancement Measures

9.10.321 The creation of new habitats will include local priority species, such as barberry, within scrub planting as appropriate.

Invasive and Non-Native Species

Construction Phase Impacts

9.10.322 Although no invasive non-native plant species have been observed to date, if present they are considered most likely to occur at field boundaries and in habitats associated with watercourses. Such species may be caused to spread through works associated with ditches and crossings thereof, or during any necessary works to clear habitats prior to construction commencing. Similarly,

although none have been observed within the watercourse within the Order Limits to date, works associated with ditches and crossings could feasibly result in the spread of American signal crayfish.

9.10.323 The **Outline EPMS [EN010168/APP/7.19]** describes precautionary measures to be taken to avoid the accidental spread of these species. This includes a briefing for all construction staff on the issue to ensure vigilance for these species, as well as inspections of proposed working locations at watercourses and ditches by an ecologist prior to commencement, and framework for production of an INNS Management Plan should any be identified within the construction area.

9.10.324 Evidence of American mink has been observed at Lime Down E. This species is not likely to be impacted during construction; impacts would only occur in the event of major work at watercourses crossings causing disturbance and subsequent abandonment of existing home ranges. Given the limited extent and temporary nature of works associated with water crossings, mink would not spread as a direct result of these works (which would otherwise result in an offence).

9.10.325 Muntjac deer have also been recorded within the Sites. This species is likely to roam widely in the local landscape and, though they will be displaced from the Sites temporarily during construction, they are already established within the county and would not be likely to spread beyond their current range as a result of the Scheme.

9.10.326 It is considered that the continued and specific monitoring for invasive non-native species as set out in the **Outline EPMS [EN010168/APP/7.19]** will reduce potential residual effects on this issue to neutral levels, especially considering their absence in the baseline information to date. **No significant adverse effects** relating to invasive/ non-native species are therefore anticipated during the construction phase.

Operation and Maintenance Phase Impacts

9.10.327 Impacts to mink and muntjac will remain the same as baseline; these species would be expected to use the operational Solar PV Sites, although operational management would not cause this (or any other invasive species) to spread beyond current extents, and **no significant effects** are anticipated.

9.10.328 Should any invasive/non-native plant species be present, **no significant effects** are considered likely during operation and maintenance, due to the buffering of peripheral habitats included within the Scheme and lack of habitat disturbance following the establishment of the habitats targeted in the **Outline LEMP [EN010168/APP/7.18]**.

9.11 Decommissioning Phase

9.11.1 The assessment of decommissioning effects takes into account the measures set out in the **Outline Decommissioning Strategy [EN010168/APP/7.14]** which accompanies the ES and will be secured by a DCO Requirement. Activities relating to the removal of solar panel frames, underground cabling, substations and concrete footings, access and energy storage would be expected to have similar (or no worse) direct effects as those described in the construction phase impacts for each receptor. Comparable levels of disturbance from movement of vehicles and personnel would also be expected.

9.11.2 The restoration of the land back to open arable farmland would likely be beneficial for some species of farmland bird which require open sightlines, as well as for plant species associated with arable margins, but much of the biodiversity value which it is anticipated will develop in the preceding (approximately) 60 years of the operation and maintenance of the Scheme would be lost, along with habitat for a variety of other species. In order to revert back to arable food production, it may be necessary to enhance the nutrient content of the soil if it has been depleted (through sensitive management measures to maximise the value of the established grasslands for biodiversity), which would likely be achieved through treatment with fertilisers. However, an increase in soil health is likely to arise during the operational phase, through an increase in soil organic carbon, better soil structure, increased infiltration and enhanced soil microbial populations. An increase in the use of pesticides and herbicides would also be expected. The decision on the farming type to be used will be made by the landowner prior to decommissioning.

9.11.3 Depending on the ecological value of the habitats that develop over the lifespan of the Scheme, it is realistic that certain areas of the Solar PV Sites may be retained due to their value for wildlife on decommissioning. Additionally, application of the ecological mitigation hierarchy principles may be necessary.

9.11.4 No more than twelve months prior to decommissioning commencing, land within the Order Limits site will be visited by an appropriately qualified ecologist to identify any ecological constraints arising from decommissioning activities. Further surveys, mitigation and/or compensatory measures may then be required in line with prevailing guidance. As a minimum, an extended UKHab Walkover Survey (or equivalent) is considered likely to be required to identify the potential presence of protected species and important habitats.

9.11.5 Based upon current (2025) legislative protection, protected species which could be directly impacted by decommissioning activities would include badgers, water vole, otter, great crested newt, reptiles and breeding birds. Further

surveys to identify the use of the land within the Order Limits by these receptors would therefore also be expected as a minimum.

9.11.6 Any mitigation measures undertaken at the point of decommissioning aimed at maintaining ecological value of the Solar PV Sites should take account of changes in ecological objectives that have occurred over the operational phase. In particular, changes in ecological conditions both within the Order Limits and on a national scale as a result of climate change (and other factors) may result in new ecological objectives that cannot at the current time be reasonably foreseen. On the basis of current conditions and legislative framework, significant effects can be expected to be the same or no worse than those identified for the construction phase.

9.12 Additional Mitigation

9.12.1 This section describes additional mitigation measures to be incorporated into the Scheme design and associated management plans. These measures have been identified in order to avoid or minimise significant adverse effects on several IEFs. The following measures are listed by IEF and development phase:

Severn Estuary Ramsar

Operation and Maintenance Phase Additional Mitigation Measures

9.12.2 Cables will be installed via HDD (or other non-open-cut methods) to cross those watercourses deemed suitable to regularly support eels and sea trout, including Gauze Brook, Gabriel's Well Brook, Pudding Brook, Pudding Brook Tributary, and Byde Mill Brook. In all such cases cables will be buried to a minimum depth of 5 m below the channel bed, in order to maximise attenuation of electromagnetic fields and minimise the risk of any adverse impacts. This is prescribed within the **Outline EPMS [EN010168/APP/7.19]**. This depth is far greater than typical installation depths and will significantly reduce the EMF, particularly magnetic (B-field), exposures. In this way, the low risk of impacts on migratory eels and sea trout will be avoided.

Traditional Orchard

Construction Phase Additional Mitigation Measures

9.12.3 An update survey of this habitat will be carried out prior to construction commencing in this section of the Cable Route Corridor.

9.12.4 As good practice, all effort will be made to avoid removal of the single fruit tree with the Cable Route Corridor. However, where this cannot be avoided then a specific remediation plan will be developed, with consideration given to

translocating the tree elsewhere within the parcel, or, as a last resort, ensuring new orchard trees are planted in its place.

9.12.5 The **Outline EPMS [EN010168/APP/7.19]** sets out the framework for the development of a remediation plan to be finalised for the detailed EPMS.

Hedgerows and Lines of Trees

Construction Phase Additional Mitigation Measures

9.12.6 In addition to the embedded mitigation within the **Outline EPMS [EN010168/APP/7.19]**, approximately 25.17 km of new hedgerow and line of tree planting has been incorporated into the Scheme within the Solar PV Sites in order to compensate for any losses anticipated across the Order Limits. The BNG Assessment concluded that there would be a +12.31% net gain in Hedgerow Units across the Scheme.

9.12.7 Although hedgerow losses across the Cable Route Corridor may result in a significant adverse effect in the short term, following the replanting of any temporarily removed hedgerows and the establishment of the compensatory planting, it is anticipated that all hedgerow losses would be adequately compensated for. In addition, measures detailed in the **Outline EPMS [EN010168/APP/7.19]**, including installation of adequately protective fencing and good practice pollution/dust suppression measures, will aim to minimise any damage or degradation to all retained hedgerows during the construction phase.

Ditches and Watercourses

Construction Phase Additional Mitigation Measures and Residual Effects

9.12.8 As prescribed within the **Outline EPMS [EN010168/APP/7.19]**, an Ecological Clerk of Works will oversee any necessary ditch trenching work associated with both construction of the Solar PV Sites and Cable Route Corridor. The EcoCoW will ensure that all mitigation measures are followed, that all necessary measures to avoid impacts to protected species that may inhabit ditches/watercourses are carried out, and that all ditch habitat restoration (such as profiling, turf-laying and over-sowing or planting) is also carried out. The EcoCoW will also be tasked with monitoring the success of all replacement planting and organising remedial action, where necessary. These measures will reduce the severity and duration of potential adverse impacts to the ditch and watercourse network across the Order Limits.

9.12.9 With the additional provisions of the **Outline EPMS [EN010168/APP/7.19]** and **Outline CEMP [EN010168/APP/7.12]** in place via a designated ECoW during

the construction work affecting ditches and watercourses, potential significant impacts can be mitigated, and any impacted watercourses will be reinstated following the completion of the cable installation.

Badgers

Construction Phase Additional Mitigation Measures

9.12.10 Prior to construction commencing across the Scheme, an update badger survey would be completed, in order to identify any newly constructed setts within the working area, as prescribed within the **Outline EPMS [EN010168/APP/7.19]**. The survey will be carried out no more than 2 months prior to the commencement of construction activities within a particular Site or section of Cable Route Corridor.

9.12.11 Should any setts be identified at this stage, a mitigation strategy would be devised, following the mitigation hierarchy. Should impacts to these setts during the construction phase be unavoidable through careful planning of the works, then these setts would likely either be temporarily excluded (for the period of construction within that particular working area) before being re-opened once construction had been completed, or otherwise permanently excluded and destroyed, under a mitigation licence from Natural England. Any mitigation licence would ensure that compensation measures (such as the creation of artificial setts and the maintenance of suitable alternative shelter) required would be implemented prior to the exclusion of the sett/s, and that any impacts to setts would remain legally compliant.

9.12.12 In order to further minimise the risk of impacts to badgers and their setts during the construction phase, all contractors will be informed about the presence of setts via a toolbox talk delivered by an ecologist prior to construction works commencing within a particular working area. No machinery will be driven within the designated ecological buffers, or materials stored in them.

9.12.13 The **Outline EPMS [EN010168/APP/7.19]** details measures to be taken to reduce the probability of incidental mortality of badgers, particularly in situations where open excavations are made and in respect of site speed limits.

9.12.14 Following the implementation of the above buffer zones and mitigation measures during the construction phase, it is considered that any potential adverse effects on badgers and their setts arising during the construction phase could be avoided, or otherwise fully mitigated and compensated for (through measures secured as part of any mitigation licence from Natural England). As a result, no further mitigation measures are deemed to be required.

Operation and Maintenance Phase Additional Mitigation Measures

9.12.15 Should new setts be excavated in areas where they come into conflict with ongoing management activities, then these setts would likely be excluded under a mitigation licence from Natural England. The mitigation licence would secure any compensation measures (such as the creation of artificial setts) required, the exclusion of the setts, and would ensure any impacts to setts are compliant with current legislation. In this way any potential adverse effects on badgers and their setts arising during the operational phase would be fully mitigated/compensated.

Bats – Roosting Bats

Construction Phase Additional Mitigation Measures

9.12.16 Any trees or buildings with potential for roosting bats, for which removal or modification is unavoidable, will be re-investigated closely, either through a climbing inspection and the use of video endoscopes (where practicable), or through the completion of emergence surveys, to determine the presence or likely absence of roosts. This requirement is secured by the **Outline EPMS [EN010168/APP/7.19]**. The loss of any roost will need to be covered under a licence from Natural England, but all alternatives will be explored beforehand. In any such cases where the loss or damage of a roost is unavoidable, the provision of alternative roost sites under licence would be expected to maintain the favourable conservation status of the species affected and ensure full legal compliance.

Bats – Foraging/Commuting

Construction Phase Additional Mitigation Measures

9.12.17 In addition to the embedded mitigation within the **Outline EPMS [EN010168/APP/7.19]**, approximately 25.17 km of new hedgerow and line of tree planting has been incorporated into the Scheme within the Solar PV Sites in order to compensate for any losses anticipated across the Order Limits. The BNG Assessment concluded that there would be a +12.31% net gain in Hedgerow Units across the Scheme.

9.12.18 Although hedgerow losses across the Cable Route Corridor may result in an adverse effect in the short term, following the replanting of any temporarily removed hedgerows and the establishment of the compensatory planting, it is anticipated that all hedgerow losses would be adequately compensated for. In addition, measures detailed in the **Outline EPMS [EN010168/APP/7.19]** will aim to minimise any damage or degradation to all retained hedgerows during the construction phase.

9.12.19 These measures will ensure there are minimal impacts on the extent or quality of habitat for foraging/commuting bats.

Dormice

Construction Phase Additional Mitigation Measures and Residual Effects

9.12.20 Incidental mortality of dormice may occur during construction should they be present within any relatively short sections of hedgerow requiring removal. In order to avoid this impact as far as reasonably possible, a precautionary method of working in relation to removal of hedgerows is set out in the **Outline EPMS [EN010168/APP/7.19]** to be finalised as in the form of a detailed OEMPS. This stipulates the attendance of a suitably licensed ecologist to be present in a watching brief role during the removal of any hedgerow habitat. The hedgerow will be thoroughly searched for signs of dormice and the gaps will be created in locations where dormouse nests are confirmed absent and where dormice will not be affected.

9.12.21 In addition to the embedded mitigation within the **Outline EPMS [EN010168/APP/7.19]**, approximately 25.17 km of new hedgerow and line of tree planting has been incorporated into the Scheme within the Solar PV Sites in order to compensate for any losses anticipated across the Order Limits. The Biodiversity Net Gain Assessment concluded that there would be a +12.31% net gain in Hedgerow Units across the Scheme.

9.12.22 Although hedgerow losses across the Cable Route Corridor may result in adverse effects in the short term, following the replanting of any temporarily removed hedgerows and the establishment of the compensatory planting, it is anticipated that all hedgerow losses would be adequately compensated for. In addition, measures detailed in the **Outline EPMS [EN010168/APP/7.19]** will aim to minimise any damage or degradation to all retained hedgerows during the construction phase. As a result, no residual significant effects on the extent or quality of dormouse habitat are anticipated during the construction phase.

9.12.23 These measures will ensure there are minimal impacts on the extent or quality of habitat for dormice.

Riparian Mammals – Otters, Water Voles and Beavers

Construction Phase Additional Mitigation Measures and Residual Effects

9.12.24 Where suitable ditches and watercourses require unavoidable crossing or reinforcement of existing crossings, these locations will be subject to inspection prior to commencement of development activities in order to detect any holts, resting sites or burrows. Where any water vole burrows or active otter holts are

present and construction works are liable to impact them (or cause disturbance to animals therein), avoidance of impacts (for instance through micro-siting of the final cable installation) will be adopted in the first instance wherever possible. Where impacts are unavoidable, mitigation measures (potentially including a licence from Natural England, if required) will be implemented to adequately mitigate impacts and ensure legal compliance. These mitigation measures will ensure that damage to ditches and watercourses which may support otter and water vole, as well as disturbance related impacts and the potential for direct harm to individuals, are avoided as far as possible. These measures are detailed in, and will be secured by, the **Outline EPMS [EN010168/APP/7.19]**.

9.12.25 With the implementation of pre-works inspections and any necessary subsequent mitigation, significant adverse effects will be avoided.

Amphibians (including Great Crested Newt)

Construction Phase Additional Mitigation Measures

9.12.26 In order to minimise the risk of accidental killing/injury of amphibians during the construction phase, the **Outline EPMS [EN010168/APP/7.19]** submitted with the DCO application sets out the supervision and protective measures required during works affecting potentially suitable habitat for amphibians at field boundaries, for example where new hedgerow gaps for access or cabling are required. These include sympathetic habitat clearance and timing, and the supervision of an ecologist where necessary. Other measures prescribed within the **Outline EPMS [EN010168/APP/7.19]** include appropriate storage of on-site materials to avoid them becoming attractive sheltering features for amphibians.

9.12.27 It is proposed to register all works within the Cable Route Corridor under Natural England's District Level Licensing (DLL) for great crested newts as compensation measure. The land within the entire Order Limits falls within either 'green' or 'amber' Natural England risk zones for GCN and therefore DLL is possible. Furthermore, correspondence with Natural England has confirmed that there is an adequate supply of compensation ponds within Wiltshire to enable DLL to be adopted for the Scheme. Through registration and provision of conservation payment under DLL, adequate compensation through strategic off-site habitat creation will be provided to address all adverse impacts associated with works within the Cable Route Corridor and ensure legal compliance.

9.12.28 When considering the above additional mitigation measures, it is considered that any potentially significant adverse effects on amphibians (including great crested newts) can be adequately reduced.

Reptiles

Construction Phase Additional Mitigation Measures

9.12.29 In order to minimise the risk of accidental killing/injury of reptiles during the construction phase, the **Outline EPMS [EN010168/APP/7.19]** submitted with the DCO application sets out the supervision and protective measures required during works affecting potentially suitable habitat for reptiles, for example where new hedgerow gaps for access or cabling are required. These will include sympathetic habitat clearance and timing and the supervision of an ecologist where necessary, and measures implemented in each case will be proportionate to the suitability of the habitats within the working area.

9.12.30 When considering the above additional mitigation measures, it is considered that the potential adverse effects on reptiles identified during the construction phase can be adequately reduced.

Breeding Birds

Ground Nesting Birds of Open Farmland - Construction Phase Additional Mitigation Measures

9.12.31 Skylark and yellow wagtail have overlapping nesting requirements, and so skylarks have been used as an umbrella species for this assessment. Of the 164 skylark territories recorded at baseline, 33 are retained in undeveloped fields, leaving 131 likely to be displaced.

9.12.32 The first way in which the impact of displacement on skylark (and yellow wagtail) will be reduced is through the large-scale creation of optimal foraging habitat in the form of diverse grassland types under/between Solar PV Panels and within buffer zones. Monitoring surveys show skylarks are regularly recorded in operational solar farms (Ref 9-67, Ref 9-68), believed to be attracted by the abundance of low-input grassland which supports a greater biomass of invertebrate prey items, especially the spiders upon which adults preferentially feed young. Skylarks have been noted on more than one occasion to feed young within or close to solar farms, although this is not taken as evidence of nesting within them, as young are often led into foraging habitats after fledging.

9.12.33 Consequently, it can be predicted that suitable nesting habitat (primarily undeveloped arable land) occurring adjacent to the Order Limits will be able to ‘absorb’ a proportion of displaced territories due to the benefit to breeding productivity conferred by their proximity to this enhanced foraging resource. It can therefore be assumed territories occurring within 100m (well within the radius of a typical 100-400m foraging bout) of the development area edges will

be mitigated in this way. This reduces the number of likely displaced territories from 131 to 90 (41 territories occurred within 100m of the boundaries of the Solar PV Sites within the 2023 to 2025 survey data).

9.12.34 As part of additional mitigation for ground nesting bird mitigation, a number of fields have been removed from hosting infrastructure for the Scheme and will be managed sensitively as set out within the **Outline LEMP [EN010168/APP/7.18]** to provide improved nesting habitat for these species.

9.12.35 These fields will either be managed as permanent grassland with a late season hay-cut (to avoid disturbance to birds during the breeding season) or as set-aside. Grassland managed in this way would be expected to support slightly greater densities of skylark territories (0.27 territories/ha) when compared with the average territory density recorded across the Solar PV Sites based on a mix of cropping and grassland regimes. Skylarks nest at a density of approximately 0.2 territories per hectare within the fields proposed for Solar PV Panels/BESS elements (164 territories / 790 ha = 0.208), which is very typical of intensive winter-sown-dominant arable systems.

9.12.36 Set-aside would comprise land which is ploughed every two to five years, with the resulting habitat comprising patchily vegetated ground, short grasses and arable weeds. This habitat has been found to support significantly higher densities of skylarks (0.56 territories /ha). Thus, the carrying capacity of these fields will be enhanced, so as to 'absorb' a significant proportion of displaced territories from the Site. A total of 26.6 territories are calculated to be mitigated in this way. **Table 9-11** provides the areas of each habitat type provided and the uplift in carrying capacity relative to the baseline.

Table 9-11: Skylark Mitigation Calculations

Proposed Habitat Type	Field Numbers	Total Area (ha)	Carrying Capacity (territories/ha)	Uplift in Carrying Capacity Relative to baseline (territories/ha)	No. Territories Mitigated (Area x Uplift)
Hay-cut grassland	A1, B12, C1, C6	54	0.27	+0.07	3.8
Set-aside	A11, A12, C10 & C24.	63.2	0.56	+0.36	22.8

9.12.37 Overall, of the 90 skylark territories anticipated to be displaced by the Solar PV Panels and BESS Area, 26.6 can be mitigated through the above measures, equivalent to approximately 29.5% of the baseline territories. Nevertheless. the

residual displacement of approximately 71.5% of the baseline skylark population would still constitute a significant adverse effect.

9.12.38 Such areas of compensatory habitat will also be usable by species such as yellow wagtail, corn bunting, grey partridge and quail. All mitigation sites will be managed under the terms of prescriptions contained within the **Outline LEMP [EN010168/APP/7.18]**.

9.12.39 For corn bunting, grey partridge and quail, it is predicted that nesting will continue to occur within the Site. Additionally, provision of compensatory habitat manged for ground-nesting birds, in conjunction with the increased foraging productivity within the Site, should reduce residual effects on these species substantially. Displacement of additional species such as yellow wagtail, corn bunting, grey partridge and quail can be expected to be much less severe.

Other Breeding Birds - Construction Phase Additional Mitigation Measures

9.12.40 In addition to the embedded mitigation within the **Outline EPMS [EN010168/APP/7.19]**, approximately 25.17 km of new hedgerow and line of tree planting has been incorporated into the Scheme within the Solar PV Sites in order to compensate for any losses anticipated across the Order Limits. The Biodiversity Net Gain Assessment concluded that there would be a +12.31% net gain in Hedgerow Units across the Scheme.

9.12.41 Although hedgerow losses across the Cable Route Corridor may result in adverse effects in the short term, following the replanting of any temporarily removed hedgerows and the establishment of the compensatory planting, it is anticipated that all hedgerow losses would be adequately compensated for. In addition, measures detailed in the **Outline EPMS [EN010168/APP/7.19]** will aim to minimise any damage or degradation to all retained hedgerows during the construction phase.

9.12.42 These measures will ensure there are minimal impacts on the extent or quality of habitat for other breeding birds.

Overwintering Birds

Construction Phase Additional Mitigation Measures

9.12.43 The **Outline EPMS [EN010168/APP/7.19]** details how work during the winter months will seek to minimise potential impacts on flocks of overwintering birds. This will involve the construction (including cabling) site management following a regime where undeveloped fields are not entered by plant or personnel unless it can be confirmed that they do not contain flocks of species likely to be most sensitive to disturbance, such as waders or wildfowl such as geese or plovers,

so as to avoid unnecessary energy expenditure at a sensitive time of year. As such, any impacts from disturbance will be avoided and such effects are deemed **neutral and non-significant**.

9.12.44 In addition to the embedded mitigation within the **Outline EPMS [EN010168/APP/7.19]**, approximately 25.17 km of new hedgerow and line of tree planting has been incorporated into the Scheme within the Solar PV Sites in order to compensate for any losses anticipated across the Order Limits. The Biodiversity Net Gain Assessment concluded that there would be a +12.31% net gain in Hedgerow Units across the Scheme.

9.12.45 Although hedgerow losses across the Cable Route Corridor may result in adverse effects in the short term, following the replanting of any temporarily removed hedgerows and the establishment of the compensatory planting, it is anticipated that all hedgerow losses would be adequately compensated for. In addition, measures detailed in the **Outline EPMS [EN010168/APP/7.19]** will aim to minimise any damage or degradation to all retained hedgerows during the construction phase. As a result, **no residual significant effects** on the extent or quality of overwintering bird habitat is anticipated during the construction phase.

White-clawed Crayfish

Construction Phase Additional Mitigation Measures and Residual Effects

9.12.46 Where suitable ditches and watercourses require unavoidable crossing or reinforcement of existing crossings, these locations will be subject to inspection prior to commencement of development activities in order to any individuals, burrows or sheltering features which could be impacted in the immediate vicinity of the working area. Where white-clawed crayfish are identified as potentially being impacted by construction works, avoidance of impacts (for instance through micro-siting of the final cable installation or adopting an alternative crossing method) will be adopted in the first instance wherever possible. Where impacts are unavoidable, mitigation measures will be implemented to adequately mitigate impacts and ensure legal compliance. These mitigation measures will ensure that damage to ditches and watercourses which may support white-clawed crayfish, as well as and the potential for direct harm to individuals, are avoided as far as possible, including seasonal timing of works to avoidance sensitive periods. These measures are detailed in, and will be secured by, the **Outline EPMS [EN010168/APP/7.19]**.

9.12.47 When considering the above additional mitigation measures, it is considered that the potential adverse effects on white-clawed crayfish identified during the construction phase can be adequately reduced.

Freshwater Fish

Construction Phase Additional Mitigation Measures and Residual Effects

9.12.48 Where open-cut trenching is used at Cable Route Corridor watercourse crossing points, these locations will be subject to inspection prior to commencement of development activities in order to re-confirm suitability for fish. Where any suitable watercourses require open-cut trenching, works will avoid key spawning seasons for brown trout (avoiding works between October – May inclusive)..

9.12.49 Additional mitigation measures may include the capture and translocation of fish from the working area to suitable habitats upstream or downstream, prior to the dewatering of the channel and use of coffer dams, as well as the supervision of the work by a suitably qualified Ecological Clerk of Works (EcoCoW). Post-construction monitoring will also be conducted to ensure that the affected habitats are suitably reinstated and that any remedial measures required are identified, as detailed in the **Outline EPMS [EN010168/APP/7.19]**.

9.12.50 With the implementation of pre-works inspections and any necessary subsequent mitigation, adverse effects can be avoided.

Plants (including Arable Weeds)

Construction Phase Additional Mitigation Measures

9.12.51 Mitigation measures designed into the Scheme and set out in within the **Outline LEMP [EN010168/APP/7.18]** include the provision of entire fields designated as set-aside (totalling approximately 61.4 ha), which will be cultivated regularly (every 2-5 years) and managed as set-aside for the duration of the Scheme. Although this mitigation measure has been designed predominately to provide suitable habitat for ground-nesting birds (particularly skylark) for the lifetime of the Scheme, this measure will also provide large areas with suitable conditions for notable arable weeds to thrive and persist within the Order Limits.

9.12.52 This includes an area of approximately 2.5 ha of field B6, where a good population of shepherd's needle has been recorded at baseline. Continued, infrequent cultivation of this area of undeveloped land as prescribed within the LEMP will seek to ensure this species is able to persist in this field.

9.12.53 As a result, it is considered that sufficient mitigation measures can be delivered to reduce impacts on habitat loss for arable weeds.

9.13 Residual Effects and Conclusions

9.13.1 This section summarises the residual significant effects of the Scheme on Important Ecological Features following the implementation of embedded and additional mitigation.

9.13.2 This chapter of the ES has identified the existing environment in relation to ecology and biodiversity and the assessment work undertaken.

9.13.3 With the adoption of additional mitigation measures described in section 9.12, it is considered that the majority of significant adverse effects identified in section 9.10 can be reduced to **neutral, non-significant** levels.

9.13.4 Residual significant adverse effects (after all mitigation has been considered) as a result of the Scheme are however anticipated for the following Important Ecological Features:

- Hedgerows
- Breeding Birds – Ground Nesting Birds of Open Habitats;

9.13.5 Residual significant beneficial effects (after all mitigation has been considered) as a result of the Scheme are anticipated for the following Important Ecological Features:

- Other Neutral Grassland;
- Woodland;
- Ponds
- Hedgerows and Lines of Trees;
- Ditches and Watercourses;
- Badgers;
- Foraging/ Commuting Bats;
- Dormice;
- Brown Hare;
- Harvest Mouse, Hedgehog and Polecat;
- Amphibians;
- Reptiles;
- Breeding Birds – Other Species;

- Overwintering Birds; and
- Terrestrial Invertebrates

9.13.6 Significant residual effects are listed in **Table 9-12** (Construction and Decommissioning) and **Table 9-13** (Operation and Maintenance). These tables are populated with anticipated significant residual effects (after all mitigation has been considered) only.

9.13.7 See Chapter 22: Summary of Significant Effects [EN010168/APP/6.1] for a summary of significant effects.

Table 9-12: Summary of Significant Residual Effects (Construction and Decommissioning)

Receptor	Importance	Description of impact	Mitigation/Enhancement measure	Residual effect after mitigation
Hedgerows	District	Temporary loss of habitat within the Cable Route Corridor	Creation and enhancement of considerable extent of hedgerows.	Adverse – Significant at Local level in the short term Neutral – Not Significant in the medium to long term.
Breeding Birds – Ground Nesting Birds of Open Habitats	District (assemblage)	Displacement of ground-nesting birds (e.g. skylark) from Solar PV Sites.	Provision of compensatory nesting habitat (permanent grassland, set-aside); enhancement of foraging opportunities; targeted management under **Outline LEMP [EN010168/APP/7.18]**.	Adverse – Significant at Local level (skylark) Adverse – Significant at Site level (yellow wagtail, corn bunting, grey partridge, quail)

Table 9-13: Summary of Significant Residual Effects (Operation and Maintenance)

Receptor	Importance	Description of impact	Mitigation/Enhancement measure	Residual effect after mitigation
Other Neutral Grassland	Local	Increased extent and quality of habitat	Creation and enhancement of considerable extent of grassland habitats, combined with cessation of intensive arable farming practices. **Outline LEMP [EN010168/APP/7.18]** to ensure ongoing favourable management	Beneficial– Significant at Local level
Woodland	Local	Increased extent and quality of habitat	Creation of considerable extent woodland, combined with cessation of intensive arable farming practices adjacent to existing woodland. **Outline LEMP**	Beneficial– Significant at Local level

Receptor	Importance	Description of impact	Mitigation/Enhancement measure	Residual effect after mitigation
			[EN010168/APP/7.18] to ensure ongoing favourable management of new habitat	
Ponds	Local	Increased extent and quality of habitat	New pond creation in suitable areas. **Outline LEMP [EN010168/APP/7.18]** to ensure ongoing favourable management of new habitat	Beneficial– Significant at Site to Local level
Hedgerows and Lines of Trees	District	Increased extent and quality of habitat	Creation and enhancement of considerable extent of hedgerows and lines of trees, combined with cessation of intensive arable farming practices adjacent to existing hedgerows. Sensitive management of hedgerows through **Outline LEMP [EN010168/APP/7.18]** measures	Beneficial– Significant at Local level
Ditches and Watercourses	Local	Increased quality of bankside habitat and improvement of water quality	Sympathetic management of bankside habitats through **Outline LEMP [EN010168/APP/7.18]** measures combined with cessation of intensive arable farming practices adjacent to existing watercourse	Beneficial– Significant at Site level
Badgers	Site	Enhanced foraging and sett building opportunities due to grassland and other newly created habitats.	Habitat creation and enhancement through **Outline LEMP [EN010168/APP/7.18]**.	Beneficial– Significant at Site level
Bats – Foraging/ Commuting	Local (Assemblage)	Increased foraging and commuting opportunities due to enhanced and newly created habitats.	Habitat creation and enhancement through **Outline LEMP [EN010168/APP/7.18]**.	Beneficial– Significant at Local level
Dormice	District	Increased extent of suitable habitat for foraging, nesting and dispersal due to enhanced and newly created habitats.	Habitat creation and enhancement through **Outline LEMP [EN010168/APP/7.18]**.	Beneficial– Significant at Local level

Receptor	Importance	Description of impact	Mitigation/Enhancement measure	Residual effect after mitigation
Other Mammals – Brown Hare	Local	Increased shelter and foraging habitat due to increased grassland habitat; reduced disturbance.	Cessation/reduction in arable farming; habitat creation and management under **Outline LEMP [EN010168/APP/7.18]**.	Beneficial– Significant at Site level
Other Mammals – Harvest Mouse, Hedgehog and Polecat	Local	Increased extent and quality of suitable habitat, reduced disturbance, greater connectivity due to cessation of agriculture.	Cessation/reduction in arable farming; habitat creation and management under **Outline LEMP [EN010168/APP/7.18]**.	Beneficial– Significant at Local level
Amphibians (including Great Crested Newt)	Local	Increased extend and quality of both terrestrial and aquatic habitat from pond creation, grassland creation, and cessation of agriculture	Cessation/reduction in arable farming; habitat creation and management under **Outline LEMP [EN010168/APP/7.18]**.	Beneficial– Significant at Local level
Reptiles	Local	Increased extent and quality of suitable habitat, reduced disturbance, greater connectivity due to cessation of agriculture	Cessation/reduction in arable farming; habitat creation and management under **Outline LEMP [EN010168/APP/7.18]**.	Beneficial– Significant at Local level
Breeding Birds of Open Habitats	District (assemblage)	Enhanced foraging due to grassland reversion and other habitat creation measures.	Favourable habitat creation/enhancement and ongoing management through **Outline LEMP [EN010168/APP/7.18]**	Beneficial – Significant at Site to Local level
Breeding Birds of Boundary Habitats	District (assemblage)	Increased foraging and sheltering opportunities due to enhanced and newly created habitats.	Habitat creation and management under **Outline LEMP [EN010168/APP/7.18]**..	Beneficial – Significant at Local level
Overwintering Birds	District (assemblage)	Increased foraging and sheltering opportunities due to enhanced and newly created habitats.	Habitat creation and management under **Outline LEMP [EN010168/APP/7.18]**..	Beneficial – Significant at Local level
Terrestrial Invertebrates	Local	Increased extend and quality of habitat from habitat creation and	Cessation/reduction in arable farming; habitat creation and management under **Outline LEMP [EN010168/APP/7.18]**.	Beneficial – Significant at Local level

Receptor	Importance	Description of impact	Mitigation/Enhancement measure	Residual effect after mitigation
		enhancement, and cessation of agriculture		

9.14 Cumulative Effects Assessment

Inter-Project Cumulative Effects

9.14.1 This section presents an assessment of cumulative effects between the Scheme and other proposed and committed plans and projects.

9.14.2 This assessment has been made with reference to the methodology and guidance set out in **Chapter 6: EIA Methodology [EN010168/APP/6.1]** of this ES and list of cumulative plans and projects identified in **ES Volume 3, Appendix 21-1: Long List of In-Combination Effects and Cumulative Developments [EN010168/APP/6.3]**.

9.14.3 For individual Important Ecological Features, this cumulative effect assessment identifies where the assessed effects of the Scheme could interact with effects arising from other plans and/or projects on a spatial and/or temporal basis.

9.14.4 Plans and projects identified from **ES Volume 3, Appendix 21-1: Long List of In-Combination Effects and Cumulative Developments [EN010168/APP/6.3]** which have the potential to result in cumulative effects on ecology and biodiversity are set out in **Table 9-14** and considered below. The remaining plans and projects were reviewed in relation to ecology and biodiversity Important Ecological Features identified in this assessment and no further potential for cumulative effects are identified.

Table 9-14: Plans and Projects Relevant to Ecology and Biodiversity Cumulative Effects Assessment

ID	Reference and Description	Distance from the Scheme	Potential Cumulative Effects
3	PL/2024/00865. Residential development for 45 dwellings, vehicular and pedestrian access including a new footway to Sopworth Lane, associated parking, open space, landscaping, and associated infrastructure.	1.1 km	Potential for further (albeit minor) loss/fragmentation of habitat for Bats and additional loss of Hedgerows. With the implementation of embedded mitigation there is considered to be no significant cumulative effects.
58	20/10972/OUT. Outline Planning Application for up to 71 Dwellings, Community Car Park, Land Reserved for Future Expansion of Hullavington CofE Primary School, Access, Open Space, Surface Water Attenuation Basin, Landscaping and Associated Works.	0.1 km	Potential for further (albeit minor) loss/fragmentation of habitat for Bats and additional loss of Hedgerows. With the implementation of embedded mitigation there is considered to be no significant cumulative effects.
96	18/08271/OUT. Outline planning application for up to 44,150 sq.m. (GIA) of development, comprising a maximum of 20,000 sq.m. (GIA) of research and development/office floorspace (Class B1 (a) and (b)) and 24,150 sq.m. of ancillary development including test areas, an energy centre, a logistics/storage building, hangar building, staff and customer facilities, and gatehouse, and new access arrangements, comprising a re-aligned section of C1 road and new roundabouts at both the junction of the	1.2 km	An Ecological Assessment prepared for this project identified habitats on site to be of high value to breeding birds and 'large numbers' of skylark were observed over the grassland areas in the centre of the site. The assessment does not quantify the numbers of skylark territories present, although the area covered by this project is considerably at 266.75 ha, and it is reasonable to assume a population of skylarks of at least Local importance. The assessment recommends mitigation measures and the retention of nesting opportunities for ground nesting birds. The adoption of a robust metric to quantify the level of mitigation has not been evident. For birds of Open Habitats (namely skylarks), the Scheme will result in a significant adverse effect at a Local level through displacement of a large proportion of skylark territories. This effect may be compounded by losses associated with this nearby project to a **significant adverse effect** at a **District level**, assuming a worst-case scenario where high numbers of skylarks are displaced by this project which are not mitigated.

ID	Reference and Description	Distance from the Scheme	Potential Cumulative Effects
	A429/C1 roads and on the C1 road (all matters reserved except for access).		
218	20/08618/FUL. Installation of a solar farm comprising ground mounted solar PV panels with a generating capacity of up to 49.9MW, including mounting system, battery storage units, inverters, underground cabling, stock proof fence, CCTV, internal tracks and associated infrastructure, landscaping and environmental enhancements for a temporary period of 40 years and a permanent grid connection hub. (Five Lane Solar Ltd)	6.5 km	An Environmental Statement was prepared for this project which concluded significant positive effects for foraging/commuting bats, breeding birds, dormice invertebrates and reptiles, primarily through new habitat creation and management, all at a Local level. Similar beneficial effects anticipated for the Scheme may result in additional effects, although only likely to occur for mobile species, namely Bats and Breeding Birds (Other Species) given the distance between the Scheme and this project. Cumulatively there will not be a change in the significance level and there will continue to be a significant effect at the Local level.
221	PL/2021/06100. The installation of a solar farm of up to 49.9MW of generating capacity, comprising the installation of solar photovoltaic panels and associated infrastructure including customer cabin, customer substation, DNO substation and equipment, inverter and transformer substations, spare part container, associated battery storage, access tracks, fencing, security cameras, landscape planting and associated works.	1.3 km	An Ecological Assessment prepared for this project identified habitats on site to be of value to breeding birds, although a breeding bird survey conducted at this project concluded only two skylark territories were present at this site. No additional significant effects on Birds of Open Habitats (namely skylarks) are anticipated to occur. The Ecological Assessment for this project concluded there would be positive effects for a number of wildlife species due to habitat creation and enhancement proposals. Similar beneficial effects anticipated for the Scheme may result in additional effects. However, these are only likely to occur for mobile species, namely Bats and Breeding Birds (Other Species) given the distance between the Solar PV Sites (where habitat creation will occur) and this project, as well as the presence of the M4 motorway between the two which is likely to be a barrier to movement for most species. Cumulatively there will not be a change in the significance level and there will continue to be a significant effect at the Local level.
254	PL/2023/10077. Construction and operation of a renewable energy park	4.9 km	An Ecological Assessment prepared for this project identified an estimate of eight skylark territories were present at this site, although mitigation in the form of open

ID	Reference and Description	Distance from the Scheme	Potential Cumulative Effects
	comprising ground mounted solar photovoltaics (PV) together with associated infrastructure, access, landscaping and cabling.		undeveloped areas were identified. No additional significant effects on Birds of Open Habitats (namely skylarks) are anticipated to occur. The Ecological Assessment for this project concluded there would be positive effects for a number of wildlife species due increases in suitable habitat extent, quality and connectivity. Similar beneficial effects anticipated for the Scheme may result in additional effects. However, these are only likely to occur for mobile species, namely Bats and Breeding Birds (Other Species) given the distance between the Solar PV Sites (where habitat creation will occur) and this project. Such effects are not anticipated to result in an additional significant effect above the Local level however.
346	PL/2024/09410. Construction and operation of a solar farm together with all associated works, equipment and necessary infrastructure	0.1km	An Ecological Assessment prepared for this project identified an estimate of five skylark territories present at this site. No additional significant effects on Birds of Open Habitats (namely skylarks) are anticipated to occur considering the relatively small number of territories impacted. The Ecological Assessment for this project concluded there would be low level of impacts on amphibians, bats and birds. With the implementation of embedded mitigation there is considered to be no significant cumulative effects

In-Combination Cumulative Effects

9.14.5 In-combination cumulative effects are those where impacts from two or more environmental disciplines are considered likely to result in a new or different likely significant effect, or an effect of greater significance, than any one of the impacts on their own. The identified in-combination effects are set out within **ES Volume 1, Chapter 21 Cumulative and In-Combination Effects [EN010168/APP/6.1]**.

9.14.6 The assessment presented in this chapter has already considered impacts on Important Ecological Features arising from the various aspects of the Scheme, including noise and vibration, electromagnetic fields, lighting, air quality, habitat change, loss, and degradation.

9.14.7 No in-combination effects alongside ecology and biodiversity have been identified as a result of the Scheme.

9.15 References

Ref 9-1 Department for Energy Security and Net Zero (2023) Overarching National Policy Statement for energy (EN-1). Available at: https://assets.publishing.service.gov.uk/media/65bbfbdc709fe1000f637052/overarching-nps-for-energy-en1.pdf

Ref 9-2 Department for Energy Security and Net Zero (2023) National Policy Statement for Renewable Energy Infrastructure (EN-3). Available at: https://assets.publishing.service.gov.uk/media/65a7889996a5ec000d731aba/nps-renewable-energy-infrastructure-en3.pdf

Ref 9-3 Department for Energy Security and Net Zero (2023) National Policy Statement for Electricity Networks Infrastructure (EN-5). Available at: https://assets.publishing.service.gov.uk/media/65a78a5496a5ec000d731abb/nps-electricity-networks-infrastructure-en5.pdf

Ref 9-4 Ministry of Housing, Communities and Local Government (2024) National Planning Policy Framework (NPPF). Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

Ref 9-5 HM Government (2018). A Green Future: Our 25 Year Plan to Improve the Environment.

Ref 9-6 Natural Environment White Paper – The Natural Choice: Securing the value of nature (2011).

Ref 9-7 Department for Environment, Food and Rural Affairs (2011) Biodiversity 2020: A strategy for England's wildlife and ecosystem services.

Ref 9-8 Government Circular: ODPM Circular 06/2005; Defra Circular 01/2005 (2005) Biodiversity and Geological conservation – Statutory obligations and their impact within the planning system.

Ref 9-9 Wiltshire Council (Adopted January 2015) Wiltshire Core Strategy.

Ref 9-10 Wiltshire Council (July 2023) Wiltshire Council Local Plan – Pre-Submission Draft 2020-2038.

Ref 9-11 Natural England (October 2023) Protected species and development: advice for local planning authorities.

Ref 9-12 Natural England and Wiltshire Council (September 2015) Bat Special Areas of Conservation (SAC) – Planning Guidance for Wiltshire.

Ref 9-13 Johns Associates on behalf of Wiltshire Council (February 2020) Trowbridge Bat Mitigation Strategy SPD.

Ref 9-14 Wiltshire Biodiversity Partnership (2008) Wiltshire Biodiversity Action Plan.

Ref 9-15 Wiltshire Wildlife Trust (July 2013) Wiltshire's Landscape Biodiversity Areas 2012.

Ref 9-16 Wiltshire Council (February 2022) A Green & Blue Infrastructure Strategy for Wiltshire: Wiltshire's Natural Environment Plan 2022-2030.

Ref 9-17 Department for Environment, Food and Rural Affairs (2024) The Statutory Biodiversity Metric.

Ref 9-18 Chartered Institute of Ecology and Environmental Management, Institute of Environmental Management and Assessment, and Construction Industry Research and Information Association (2016) Biodiversity Net Gain: Good Practice Principles for Development.

Ref 9-19 British Standards Institute (2013) British Standard BS42020:2013 Biodiversity: a Code of Practice for Planning and Development.

Ref 9-20 BRE (2014) Biodiversity Guidance for Solar Developments. Eds G E Parker and L Greene.

Ref 9-21 Solar Energy UK (SEUK) (2022). Natural Capital Best Practice Guidance: Increasing biodiversity at all stages of a solar farm's lifecycle.

Ref 9-22 Natural England (2017) Evidence Review of the Impact of Solar Farms on Birds, Bats and General Ecology (NEER012) 1st Edition.

Ref 9-23 Montag H, Parker G and Clarkson T (2016). The Effect of Solar Farms on Local Biodiversity: A Comparative Study. Clarkson and Woods and Wychwood Biodiversity

Ref 9-24 Available at: https://magic.defra.gov.uk/magicmap.aspx

Ref 9-25 Available at: https://naturalengland-defra.opendata.arcgis.com/datasets/Defra::priority-habitats-inventory-england/about

Ref 9-26 Available at: https://naturalengland-defra.opendata.arcgis.com/datasets/ancient-woodland-england/explore

Ref 9-27 Available at: https://naturalengland-defra.opendata.arcgis.com/datasets/Defra::priority-river-habitat-rivers-england/about

Ref 9-28 Harris G & Linham P (2017) Mammals in Wiltshire. 2nd Edition. Wiltshire & Swindon Biological Records Centre, Wiltshire Mammal Group & Wiltshire Bat Group.

Ref 9-29 Available at: https://environment.data.gov.uk/ecology/explorer/

Ref 9-30 Available at: https://www.data.gov.uk/dataset/157466e1-0286-4835-80dd-b9899b655877/great-crested-newt-risk-zones-swindon-and-wiltshire

Ref 9-31 https://www.bing.com/maps

Ref 9-32 https://www.google.co.uk/maps

Ref 9-33 Joint Nature Conservancy Council (JNCC) (1990 - 2010 edition). Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit, Joint Nature Conservation Committee

Ref 9-34 Institute of Environmental Assessment (1995). Guidelines for Baseline Ecological Assessment. E & FN Spon, London

Ref 9-35 UKHab Ltd (2023). UK Habitat Classification Version 2

Ref 9-36 Department for Environment, Food and Rural Affairs (2023). The Statutory Biodiversity Metric: Technical Annex 1 - Condition Assessment Sheets and Methodology

Ref 9-37 Collins J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition) The Bat Conservation Trust, London

Ref 9-38 Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London.

Ref 9-39 Bibby, C.J., Burgess, N.D., Hill, D.A. and Mustoe, S.H. (2000). Bird Census Techniques. Academic Press, London

Ref 9-40 Bird Survey & Assessment Steering Group. (2024). Bird Survey Guidelines for assessing ecological impacts. Available at https://birdsurveyguidelines.org

Ref 9-41 Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067. Freshwater Habitats Trust: Oxford

Ref 9-42 Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016) The Water Vole Mitigation Handbook (Mammal Society Mitigation Guidance Series). Mammal Society, London

Ref 9-43 Natural England (2014). Otters: surveys and mitigation for development projects.

Ref 9-44 Shuker, L.J et al (2017) MoRPh: a citizen science tool for monitoring and appraising physical habitat changes in rivers. Water and Environment Journal, 31(3): 418-424

Ref 9-45 Gurnell et al (August 2021) A Guide to Assessing River Condition – Part of the River and Streams Component of the Biodiversity Net Gain Metric

Ref 9-46 CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management. Available at: https://cieem.net/

Ref 9-47 CIEEM (2000) Guidelines for Ecological Evaluation and Impact Assessment. In Practice No. 29.

Ref 9-48 Planning Inspectorate Reference: EN010168 (July 2024) Lime Down Solar Park: Environmental Impact Assessment Scoping Report

Ref 9-49 Available at: https://experience.arcgis.com/experience/88c3030c2e864645aaec7dc3e0ac4cb6/page/Page

Ref 9-50 Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747

Ref 9-51 Boye P, Dietz M. (2005) Research Report No 661: Development of good practice guidelines for woodland management for bats. English Nature, Peterborough

Ref 9-52 Ransome, R. (1997) The management of greater horseshoe bat feeding areas to enhance population levels. English Nature Research Reports 241, Peterborough

Ref 9-53 Barataud, M. (2015) Acoustic ecology of European bats. Species identification and studies of their habitats and foraging behaviour. Biotope Editions, Mèze

Ref 9-54 Pinaud, D, Claireau, F, Leuchtmann, M, Kerbiriou, C. (2018) Modelling landscape connectivity for greater horseshoe bat using an empirical quantification of resistance. J Appl Ecol. 55:2600–2611

Ref 9-55 Schofield, H. & Morris, C. (2000) Ranging behaviour and habitat preferences of female Bechsteins's bat, Myotis bechsteinii (Kuhl, 1818), in summer. Vincent Wildlife Trust

Ref 9-56 Palmer, E. P. (2013) A study on the population size, foraging range and roosting ecology of Bechstein's bats at Grafton Wood, SSSI, Worcestershire. A report to The People's Trust for Endangered Species and Worcestershire Wildlife Trust.

Ref 9-57 Available at: https://www.arcgis.com/apps/webappviewer/index.html?id=17cd53dfc524433980cc333726a56386

Ref 9-58 Solar Energy UK (2023). Solar Habitat: Ecological trends on solar farms in the UK. Solar Trade Association, London

Ref 9-59 Józefowska, A., Miechówka, A. & Frouz, J. (2016) Comparison of earthworm populations in arable and grassland fields in the Outer Western Carpathians, South Poland. Biologia 71, 316–322

Ref 9-60 Tinsley, L. et al (2023). Renewable energies and biodiversity: impact of ground-mounted solar photovoltaic sites on bat activity. Journal of Applied Ecology, 60 (9):1752-1762.

Ref 9-61 Barré, K., Baudoin, A., Froidevaux, J.S.P., Chartendrault, V. & Kerbiriou, C. (2023) Insectivorous bats alter their flight and feeding behaviour at ground-mounted solar farms. J Appl Ecol 61(2): 328-339

Ref 9-62 Luo, J., Siemers, B.M. & Koselj, K. (2015) How anthropogenic noise affects foraging. Global Change Biology 21(9):3278-3289

Ref 9-63 Bunkley, J.P., McClure, C.J.W., Kleist, N.J., Francis, C.D. and Barber, J.R. (2015) Anthropogenic noise alters bat activity levels and echolocation calls. Global Ecology and Conservation 3: 62–71

Ref 9-64 Janssen, R., Delbroek, R. and Molenaar, T. (2017) Vleermuizen op de Lonnekerberg mede in relatie tot het Airforce Festival. Monitoring en analyse van het gedrag van de passieve luisteraars gewone grootoorvleermuis, vale vleermuis en Bechsteins vleermuis. Bionet Natuuronderzoek 2: 53

Ref 9-65 Chanin, P. & Gubert, L. (2012) Common dormouse Muscardinus avellanarius movements in a landscape fragmented by roads. Lutra 55: 3-15

Ref 9-66 Kelm, J., Lange, A., Schulz, B., Gottsche, M., Steffens, T. & Reck, H. (2015) How often does a strictly arboreal mammal voluntarily cross roads? New insights into the behaviour of the hazel dormouse in roadside habitats. Folia Zoologica 64(4):342-348

Ref 9-67 Solar Energy UK (2024) Solar Habitat 2024: Ecological trends on solar farms in the UK. Solar Trade Association, London

Ref 9-68 Solar Energy UK (2025) Solar Habitat 2025: Ecological trends on solar farms in the UK. Solar Trade Association, London

Ref 9-69 Copping J.P., Waite C.E., Balmford A., Bradbury R.B., Field R.H., Morris I. & Finch T. (2025) Solar farm management influences breeding bird responses in an arable-dominated landscape, Bird Study, DOI: 10.1080/00063657.2025.2450392