

KILNSIDE ENERGY PARK



EIA Scoping Report Main Text and Appendices

EN0110022

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Glossary and Project Elements

Term	Definition
Arup	Ove Arup & Partners Limited
Ancillary Infrastructure	Office, warehouse, and plant buildings located within the Solar Development Site. Works to include means of enclosure and boundary treatment, security and monitoring infrastructure, landscaping and biodiversity measures including planting, drainage and irrigation works, signage, earthworks, and access including permissive paths.
Associated Development	Development which is associated with the Nationally Significant Infrastructure Project as defined in the Planning Act 2008 and associated guidance.
Aukera	Aukera Energy
Battery Energy Storage System (BESS) Compound	The area within the Solar Development Site which will contain the BESS, inverters, transformers and switchgear, low voltage distribution cables, some primary access tracks, fencing and other associated works.
Central Container Inverters	Inverters, switchgear and transformers will be located throughout the Solar Development Site and would be housed together in containers.
Central Transformers	Transformers will be located within the same container that houses the inverters and switchgear.
Field Station	Areas of hardstanding within the Solar Development Site that will house inverters, transformers and switchgear.
Grid Cable Route Search Area	The area within which the Grid Connection Cables will be installed to connect the On-Site Substation(s) (within the Solar Development Site) to the National Grid. This area is currently indicative to cover a number of different routing options.
Grid Connection Cables	The buried 400kV cables connecting the On-Site Substation(s) to the National Grid Substation. Located within the Grid Cable Route Search Areas.
Highway Works Site	The areas that are being proposed for improvement works to facilitate access to the Proposed Development. Works to facilitate access to the Proposed Development, may include: - creation of accesses from the public highway; - creation of visibility splays; - works to widen and surface the public highway (including the creation of passing places); - electrical cabling works within the highway; and

Term	Definition
	- any temporary works to facilitate construction access including for Abnormal Indivisible Loads (AIL).
Interconnecting Cabling	The 33kV cables linking the solar PV areas in the Solar Development Site to the On-Site Substation(s).
Inverter	Inverters convert the direct current (DC) electricity collected by the PV Panels into alternating current (AC) which allows the electricity generated to be exported to the National Grid Electricity Transmission (NGET) network.
Link Box	Inspection pits which are required at points where different sections of the Grid Connection Cables are joined.
Module Mounting Structure	Structure that is fixed to the ground and onto which the PV modules are attached.
National Grid Substation	The proposed 400kV substation, which would be either a new substation (the location of which is subject to confirmation by NGET) or modification to the existing 400kV Substation at Ryhall.
On-Site Substation(s)	New substation(s) to be created within the Solar Development Site. The On-Site Substation(s) will comprise electrical infrastructure such as the transformers, switchgear and metering equipment required to facilitate the export of electricity from the Proposed Development to the National Grid.
Order Limits	The planning boundary for all land required for the Proposed Development at the time of Application submission.
PINS Advice on CEA	Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment.
Proposed Development	Kilnside Energy Park, comprised of all infrastructure and development associated with the project (i.e. the solar PV and battery storage and associated development for connection to the National Grid), as described in detail within Section 2.2 of this EIA Scoping Report.
Site	The collective term for all land within the draft Order Limits (the Solar Development Site and the Grid Cable Route Search Area).
Solar Development Site	The term for all land within the Site excluding the Grid Cable Route Search Area which may include land for Solar PV infrastructure, Highway Works and associated development.
Solar PV Panels	Solar PV panel designed to convert solar irradiance to electrical energy fitted to mounting structures.
String inverters	Inverters located throughout the Solar Development Site, mounted on mounting structures beneath the PV modules to form a string.

Term	Definition
Study Area	The area in which a particular assessment or survey targets. The study area will vary depending on the nature of the technical discipline.
Switchgear	Combination of electrical disconnect switches, fuses, or circuit breakers used to control, protect and isolate electrical equipment.
Temporary construction/Decommissioning Compounds	Temporary laydown areas comprising of hard standing which could include areas for offices, car parking, storage for materials and equipment during the construction and decommissioning phases of the Proposed Development.
the Applicant	Kilnside Energy Park Limited
the Application	Development Consent Order (DCO) application.
the APFP Regulations	The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009
the CIEEM EcIA guidance	the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment (EcIA).
the day-evening night level (Lden)	A noise indicator used to monitor overall annoyance based on annual average A-weighted long-term sound over a 24-hour period. Evening noise (7pm-11pm) of 5 dB(A) and night-time noise (11pm – 7am) of 10 dB(A) will incur a penalty.
the EIA Regulations	Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.
the Solar Scoping guidance	Technical Guidance for Scoping Solar NSIP Development.
Transformer	Transformers (installed either indoors or outdoors) are used to control the voltage of the electricity generated across the Solar Development Site before it reaches the On-Site Substation(s).

Table of Acronyms

Term	Definition
AC	alternating current
AEP	annual exceedance probability
AGL	above ground level
AIA	Arboricultural Impact Assessment
AIL	abnormal indivisible loads
ALARP	as low as reasonably practicable
ALC	Agricultural Land Classification
ANC	Association of Noise Consultants
AoD	above ordnance datum
AONB	Area of Outstanding Natural Beauty
AQMA	Air Quality Management Areas
ARW	ancient, replanted woodland
ASNW	ancient, semi-natural wood(land
ATI	Ancient Tree Inventory
ATS	air traffic services
AW	ancient woodland
AWI	Ancient Woodland Inventory
BAP	Biodiversity Action Plan(s)
BESS	battery energy storage system
BMV	best and most versatile
BNG	biodiversity net gain
BoCC	Birds of Conservation Concern
BPA	British Pipeline Agency
BPM	Best Practicable Means
BRE	Building Research Establishment
BS	British Standards
CCC	Committee on Climate Change
CCR	climate change resilience
CCRA	climate change risk assessment
CCTV	closed circuit television

Term	Definition
CEA	cumulative effects assessment
CEMP	Construction Environmental Management Plan
CH₄	Methane
CIEEM	Chartered Institute for Ecology and Environmental Management
CiFA	Chartered Institute for Archaeologists
CIRIA	Construction Industry Research and Information Association
cm²	centimetres squared
CNP	critical national priority
CO₂	carbon dioxide
COSHH	Control of Substances Hazardous to Health
CPRE	Council for the Protection of Rural England
CRoW	Countryside and Rights of Way
CRTN	Calculation of Road Traffic Noise
CSM	conceptual site model
CTMP	Construction Traffic Management Plan
dB(A)	A-weighted decibel
DBA	desk-based assessment
DC	direct current
DCO	Development Consent Order
Defra	Department of Environmental, Food and Rural Affairs
DEMP	Decommissioning Environmental Management Plan
DESNZ	Department for Energy Security and Net Zero
DLL	District Level Licencing
DLUHC	Department for Levelling Up, Housing and Communities
DM	do-minimum
DMRB	Design Manual for Roads and Bridges
DPD	development plan documents
DSM	digital surface model
DTM	digital terrain model
DWSgZ	drinking water safeguard zones
EC	European Commission

Term	Definition
ECoW	Ecological Clerk of Works
EEA	European Economic Area
EIA	environmental impact assessment
EIP	Environment Improvement Plan
ELC	European Landscape Convention
EMF	electromagnetic field
EMR	electromagnetic radiation
ENRMF	East Northants Resource Management Facility
EPUK	Environmental Protection UK
ERP	emergency response plan
ES	Environmental Statement
FAA	Federal Aviation Authority
FCD	Field Capacity Days
FEWP	Flood Warning and Evacuation Plan
FLL	functionally linked land
FRA	flood risk assessment
FTE	full-time equivalent
GCN	great crested newt
GHG	greenhouse gas
GLVIA3	third edition Guidelines for Landscape and Visual Impact Amenity
GPP	Guidance for Pollution Prevention
GRP	glass reinforced plastic
GW	Gigawatt
GWDTE	groundwater dependent terrestrial ecosystems
H&SP	health and safety plan
ha	hectare
HCA	Homes and Communities Agency
HDD	horizontal directional drilling
HDV	heavy duty vehicles
HER	Historic Environment Record
HPI	habitats of principle importance

Term	Definition
HRA	Habitats Regulations Assessments
HSE	Health and Safety Executive
HSI	habitat suitability index
HV	high voltage
HVAC	heating, ventilation and cooling
IAQM	Institute of Air Quality Management
ICCI	in-combination climate change impacts
ICE	Inventory of Carbon and Energy
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IDA	International Dark-Sky Association
IDB	internal drainage board
IEMA	Institute of Environmental Management and Assessment
ILP	Institute of Lighting Professionals
INNS	invasive non-native species
ISO	International Organisation for Standardisation
IUCN	International Union for Conservation of Nature
LAQM	Local Air Quality Management
LCA	Landscape Character Assessment(s)
LCC	Lincolnshire County Council
LCRM	land contamination risk management
LCT	Landscape Character Type(s)
LDV	light duty vehicle
LeCC	Leicestershire County Council
LEMP	Landscape and Ecological Management Plan
LETI	Low Energy Transformation Initiative
LGV	light goods vehicles
LIR	local impact report
LI TGN	Landscape Institute Technical Guidance Note
LLFA	lead local flood authority
LLR	Leicester, Leicestershire and Rutland
LNR	Local Nature Reserve

Term	Definition
LNRS	Local Nature Recovery Strategy
LoD	Limits of Deviation
LRERC	Leicestershire and Rutland Environmental Records Centre
LSE	Likely Significant Effects
LVIA	Landscape and Visual Impact Assessment
LWS	Local Wildlife Site(s)
LWT	Lincolnshire Wildlife Trust
M&AD	major accidents and disasters
MCZ	Marine Conservation Zones
MHCLG	Ministry of Housing, Communities and Local Government
MSA	mineral safeguarding area
MtCO_{2e}	million tonnes of carbon dioxide equivalent
MW	Megawatt
MWMP	Materials and Waste Management Plan
NBN	National Biodiversity Network
NCA	National Character Area
NCN	National Cycle Network
NERC	Natural Environment and Rural Communities Act
NGET	National Grid Electricity Transmission
NGG	National Grid Gas
NHLE	National Heritage List for England
NIA	Noise Important Area(s)
NMU	non-motorised user(s)
NNR	National Nature Reserve(s)
NO₂	nitrogen dioxide
NPPG	National Planning Policy Guidance
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NPSE	Noise Policy Statement for England
NRMM	non-road mobile machinery
NRR	National Risk Register
NSIP	Nationally Significant Infrastructure Project

Term	Definition
NSN	National Site Network
NSR	noise sensitive receptors
NTS	non-technical summary
NVC	National Vegetation Classification
NVZ	nitrate vulnerable zone(s)
nw	Nanowatts
oBSMP	Outline Battery Safety Management Plan
oCSEaSCP	Outline Construction Skills, Employment and Supply Chain Plan
oCTMP	Outline Construction Traffic Management Plan
oDEMP	Outline Decommissioning Environmental Management Plan
OEMP	Operational Environmental Management Plan
OHL	overhead line
oLEMP	Outline Landscape and Ecological Management Plan
ONS	Office for National Statistics
oOEMP	Outline Operational Environment Management Plan
oPRoWMP	Outline Public Rights of Way Management Plan
OS	Ordnance Survey
oSMP	Outline Soil Management Plan
oWSI	Outline Written Scheme of Investigation
PA 2008	The Planning Act 2008
PEA	preliminary ecological appraisal
PHE	Public Health England
PINS	Planning Inspectorate
PoC	Point of Connection
PPE	personal protective equipment
PPG	Pollution Prevention Guidance
PPG	Planning Practice Guidance
PRA	preliminary risk assessment
Proposed Development	Kilnside Energy Park
PRoW	public right(s) of way
pSAC	possible Special Area of Conservation

Term	Definition
pSPA	potential Special Protection Area(s)
PSR	Pipeline Safety Regulations
PV	Photovoltaic
PSYM	Predictive System for Multimetrics
Q₉₅	the flow that is exceeded 95% of the time
RBD	river basin district
RBMP	river basin management plans
RCC	Rutland County Council
RCP_{8.5}	Representative Concentration Pathway 8.5
RICS	Royal Institution of Chartered Surveyors
RVAA	residential visual amenity assessment
SAC	Special Area(s) of Conservation
SAFFA	Salmon and Freshwater Fisheries Act
SBM	Statutory Biodiversity Metric
SCI	Sites of Community Importance
SF₆	sulphur hexafluoride
SGHAT	Solar Glare Hazard Analysis Tool
SKDC	South Kesteven District Council
SoS	Secretary of State
SPA	Special Protection Area(s)
SPI	Species of Principle Importance
SPZ	source protection zone(s)
SQM	sky quality metre
sr	Steradian
SRN	strategic road network
SSSI	Site(s) of Special Scientific Interest
SuDS	Sustainable urban Drainage Systems
TA	Transport Assessment
tCO_{2e}	tonnes of carbon dioxide equivalent
TCPA	Town and Country Planning Act 1990
TWAO	Transport and Works Act Order(s)
UKBAP	UK Biodiversity Action Plan

Term	Definition
UKCP18	UK Climate Projections 2018
UKHab	UK Habitats Classification
UNESCO	the United Nations Educational, Scientific and Cultural Organization
WC	wetness class
WCA	Wildlife and Countryside Act 1981
WDTE	water dependent terrestrial ecosystems
WEEE	waste electrical and electronic equipment
WER	Water Environment (Water Framework Directive) Regulations 2017
WFD	Water Framework Directive
WHO	World Health Organisation
ZoI	zone of influence
ZTV	zone of theoretical visibility

1. Introduction

1.1 Background

- 1.1.1.1 Kilnside Energy Park Limited ('the Applicant') has commissioned this Environmental Impact Assessment (EIA) Scoping Report for the Kilnside Energy Park ('Proposed Development').
- 1.1.1.2 The Proposed Development comprises a generating station with a capacity in excess of 50 megawatts (MW) and is therefore classified as a Nationally Significant Infrastructure Project (NSIP) as defined under the Planning Act 2008¹ (PA 2008). Therefore, the Applicant intends to submit an application for a Development Consent Order (DCO).
- 1.1.1.3 The Proposed Development consists of a solar farm including solar photovoltaic (PV) generating panels and on-site energy storage facilities ('Solar Development Site'), works to facilitate access to the Proposed Development ('Highway Works') at a site near Great Casterton within the administrative boundary of Rutland County Council (RCC), together with land for electrical grid connection route options ('Grid Cable Route Search Area') which includes land within the administrative boundaries of South Kesteven District Council (SKDC) and Lincolnshire County Council (LCC).
- 1.1.1.4 The Solar Development Site and Grid Cable Route Search Area together with other areas required for access and ancillary infrastructure are referred to in this EIA Scoping Report as 'the Site'. These are described further in **Section 2: Site Description and the Proposed Development of this EIA Scoping Report**.
- 1.1.1.5 **Figure 1.1: Site Location Plan** and **Figure 1.2: Site Plan Aerial** show the Site which is indicative at this stage, being subject to ongoing design and refinement. Local authority boundaries are shown on **Figure 1.3: Plan Showing the Local Authority Planning Boundaries**. The Solar Development Site and Grid Cable Route Search Area currently under consideration are shown on **Figure 1.4: Parts of the Site Referred to in the EIA Scoping Report**.
- 1.1.1.6 In accordance with Regulation 8(1)(b) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 ('the EIA Regulations')² the Applicant confirms that an Environmental Statement (ES) will accompany the DCO application ('the Application') to be submitted to the Planning Inspectorate (PINS) for the Proposed Development.
- 1.1.1.7 This EIA Scoping Report forms a formal request for an EIA Scoping Opinion from the Secretary of State (SoS) for Energy Security and Net Zero (DESNZ) for the purposes of Regulation 10(1) of the EIA Regulations for the Proposed Development.
- 1.1.1.8 The purpose of this EIA Scoping Report is to establish the scope, including content and extent of matters which should be covered in an ES to be prepared and submitted for the Proposed Development. It has been prepared in accordance with PINS Advice Note Seven³ for all environmental factors (topics) set out in the EIA Regulations.

1.2 The Applicant

- 1.2.1.1 The Applicant is owned by Aukera Energy ('Aukera'), a renewable energy developer and investor operating across the UK and Europe. Aukera focuses on grid-scale solar, onshore wind, and battery storage projects and seeks to be involved in all stages of the project lifecycle, from development and construction to long-term operation.
- 1.2.1.2 The Applicant currently has 250MW of renewable energy infrastructure under construction in the UK and is advancing a further pipeline nationwide. Aukera also maintains an active development portfolio in Italy, Germany, and Romania.
- 1.2.1.3 The company is committed to responsible development and meaningful engagement with local communities, reinvesting in new projects to support a sustainable and low carbon energy future.

1.3 Need for the Proposed Development

- 1.3.1.1 The Proposed Development would provide new energy generating infrastructure, in line with national policy targets for decarbonisation, including meeting net zero targets, safeguarding energy supply and ensuring affordability.
- 1.3.1.2 The Energy Security Strategy⁴ produced by the UK Government in April 2022 announced the intent to increase solar capacity in the UK from 14 GW to 70GW by 2035. The Overarching National Policy Statement (NPS) for Energy (NPS EN-1)⁵ designated in January 2024 establishes that the delivery of low carbon energy infrastructure, such as the Proposed Development, is of Critical National Priority (CNP). In addition, the Energy White Paper: Powering our Net Zero Future⁶ outlined the need to 'build back greener' following the impact of Coronavirus, addressing the inter-generational challenge of climate change. The White Paper identifies the UK Government's aim for a fully decarbonised, reliable and low-cost power system by 2050. The 'Powering Up Britain'⁷ policy paper further reiterates the Government commitment to solar energy, setting out a goal for a fivefold increase in solar power by 2035. The UK's decarbonisation target as described in The Climate Change Act (2008)⁸ is to ensure that the UK net carbon account for the year 2050 is at least 100% lower than the 1990 baseline. The Clean Power 2030 Action Plan⁹ sets out the UK's roadmap for a clean energy transition by 2030 to deliver greater renewable, affordable, and secure energy. The sixth carbon budget (2033 – 2037)¹⁰ has been set at 965 million tonnes of carbon dioxide equivalent (MtCO₂e) in line with the level advised by The Committee on Climate Change, with the seventh carbon budget (2038 - 2042) setting a limit of 535 MtCO₂e over the following five-year period¹¹.
- 1.3.1.3 The Proposed Development would contribute to the UK Government's legally binding target to reach net zero emissions by 2050 and respond to the projected increase in demand for electricity, as well as improving UK energy security and resilience in line with national strategy. Consultation on the draft NPS EN-1⁵ published in April 2025 aims to further strengthen the process of decisions and delivery of major new infrastructure in England and Wales, such as the Proposed Development, to reinforce the government's ambition to deliver Clean Power by 2030 and its commitment to net zero.

1.4 Legislative Context and Need for EIA

1.4.1 Requirement for a Development Consent Order

- 1.4.1.1 Part 3, Section 14 of the PA 2008 defines the types of development that constitute a NSIP and therefore require development consent under Section 31 of the PA 2008. The Proposed Development falls within the definition of an NSIP under Section 14(1)(a) and 15(2) of the 2008 Act as an onshore ‘generating station with a capacity exceeding 50 MW’.
- 1.4.1.2 The Applicant is required to seek a DCO to construct and operate the Proposed Development under Section 31 of the 2008 Act. Section 37 of the PA 2008 also governs the form, content and accompanying documents that are required as part of a DCO application. The requirements are implemented through The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009¹² (‘APFP Regulations’). Regulation 5(2) of the APFP Regulations states that an application must be accompanied by an ES, where a development is considered to be ‘EIA development’ under the EIA Regulations.

1.4.2 Requirement for Environmental Impact Assessment

- 1.4.2.1 Regulation 3(1) of the EIA Regulations defines the meaning of ‘EIA development’ (with reference to Schedules 1 and 2 to the EIA Regulations). Those developments listed under ‘Schedule 1’ must always be subject to EIA and ‘Schedule 2’ developments are only subject to EIA should it be judged, in accordance with Regulation 3(1) that the development is:
“likely to have significant effects on the environment by virtue of factors such as its nature, size or location”.
- 1.4.2.2 Schedule 3 of the EIA Regulations provides the selection criteria for screening to determine whether a Schedule 2 development requires EIA. The Proposed Development is categorised as ‘Schedule 2’ development under Paragraph 3(a) of Schedule 2 of the EIA Regulations, as it comprises ‘industrial installations for the production of electricity, steam and hot water’. It must, therefore, be considered whether, under the criteria of Schedule 3, the Proposed Development constitutes EIA Development.
- 1.4.2.3 The Applicant considers that due to the size, nature, and location of the Proposed Development, it has the potential to have significant effects on the environment and that an EIA will be required. Accordingly, under Regulation 8(1)(b) of the EIA Regulations, the Applicant wishes to confirm to the SoS that an ES will be submitted with the Application and a formal EIA Screening Opinion is not being sought from the SoS.

1.4.3 Content of the Environmental Statement

- 1.4.3.1 Having determined that an ES will be included as part of the Application for development consent, which will present the details of the EIA of the Proposed Development, in accordance with Regulation 10(1) of the EIA Regulations, the Applicant is applying to the SoS for their opinion as to the scope and level of detail of the information to be provided in the ES.

Request for an EIA Scoping Opinion

- 1.4.3.2 The EIA Regulations set out the requirements for an applicant who proposes to request an EIA Scoping Opinion from the SoS. Regulation 10(3) of the EIA Regulations³ requires an EIA Scoping Opinion request to include:
- “a plan sufficient to identify the land;
 - a description of the proposed development, including its location and technical capacity;
 - an explanation of the likely significant effects of the development on the environment; and
 - such other information or representations as the person making the request may wish to provide or make.”
- 1.4.3.3 In accordance with the EIA Regulations, this EIA Scoping Report provides information to identify the location of the Proposed Development, including a site plan (**Figure 1.1: Site Location Plan**). It also provides a description of the Proposed Development and its technical capacity (**Section 2: Site Description and the Proposed Development**). Where aspects of the Proposed Development’s design remain subject to further assessment and option selection, this is identified (**Section 2 and Section 3: Legislation, Policy Context and Alternatives**).
- 1.4.3.4 This EIA Scoping Report provides an explanation of the potential likely significant effects of the Proposed Development on the environment, setting out the proposed approach and methodology for further assessment in **Section 6 – Section 17**. Finally, this EIA Scoping Report provides information and rationale from the Applicant in relation to topics that are not considered likely to result in significant environmental effects and which it is proposed are **Scoped Out** of further assessment in **Section 19: Summary and Conclusions**.

EIA Scoping Guidance

- 1.4.3.5 This EIA Scoping Report has been prepared in accordance with the relevant legislative provisions and associated guidance. This includes guidance set out in PINS Advice Notes including Advice Note Seven and PINS Technical Guidance for Scoping Solar NSIP Development¹³ (‘the Solar Scoping guidance’) which recognises that by applying a comprehensive, evidence-based approach to EIA scoping, certain aspects or matters can be **Scoped Out** of the EIA, ensuring that the emphasis of the ES is on the likely ‘main’ or ‘significant’ environmental effects anticipated. The Applicant has considered the approach advocated in the Solar Scoping guidance to provide a robust evidence base for scoping aspects/ matters in and out of the ES and in each of the topic sections (**Section 6 to Section 17**) has taken a systematic approach as follows:
- providing information on the existing environmental baseline including sensitive land use, features and receptors and a forecast of the future baseline conditions under sub-heading ‘Baseline conditions’ in **Sections 6-17**;
 - explaining how aspects of the Proposed Development during construction, operation (including maintenance) and decommissioning are likely to interact with the baseline environment, including potential impact pathways that could arise as a result of the Proposed Development in sub-heading ‘Potential impacts and effects’ in **Sections 6-17**;

- providing clear commitments to design/ embedded mitigation including environmental design and management plans that are relied on for the purposes of scoping matters out. These are clearly stated in sub-heading ‘*Design, Mitigation and Enhancement Measures*’ in **Sections 6-17**. Where outline versions of management plans are proposed to accompany the Application, this is clearly stated and the commitment to securing final versions through the DCO is explicitly noted so that a high level of confidence can be had in the effectiveness of this embedded mitigation. A commitments register will accompany the Application that captures each of these matters;
- Where assumptions underpin the evaluation of potential impacts and effects, these are stated within sub-heading ‘*Assumptions, Limitations and Uncertainty*’; and
- A Summary Table is provided at the end of each section (**Sections 6-17**) to make clear which matters are proposed to be **Scoped Out**/ In including rationale behind this decision.

1.4.3.6 Table 1-1 presents the information highlighted in paragraph 5.2 (and associated Insert 2 – Information to be provided with a scoping request) of Advice Note Seven regarding the content of a request for an EIA Scoping Opinion, including signposting to the location in this EIA Scoping Report where the relevant information is presented.

Table 1-1: Information provided in the EIA Scoping Report (Based on Advice Note Seven)

Description of Information Required (Advice Note Seven)	Location information provided in this EIA scoping report
The Proposed Development	
An explanation of the approach to addressing uncertainty where it remains in relation to elements of the Proposed Development e.g. design parameters	Section 2: Site Description and the Proposed Development
Referenced plans presented at an appropriate scale to convey clearly the information and all known features associated with the Proposed Development	Section 2: Site Description and the Proposed Development and Figures Figure 1.1: Site Location Plan, Figure 1.2: Site Plan Aerial Figure 1.3: Plan Showing Local Authority Planning Boundaries Figure 2.1a and 2.1b: Environmental Constraints – Solar Development Site Figure 2.2a and 2.2b: Environmental Constraints – Solar Development Site and Grid Cable Route Search Area
EIA approach and topic areas	
An outline of the reasonable alternatives considered and the reasons for selecting the preferred option	Section 3: Legislation, Policy Context and Alternatives
A summary table depicting each of the aspects and matters that are requested to be Scoped Out allowing for quick identification of issues	Section 19: Summary and Conclusions

Description of Information Required (Advice Note Seven)	Location information provided in this EIA scoping report
A detailed description of the aspects and matters proposed to be Scoped Out of further assessment with justification provided, including assumptions relied upon. A summary table is also provided at the end of each chapter including the assumptions relied upon.	Section 6 to 17 ('Topic sections' sub-headings 'potential impacts and effects', 'design mitigation and enhancement measures', 'likely significant effects', 'assumptions, limitations and uncertainties and 'summary')
Results of desk-top and baseline studies where available and where relevant to the decision to scope in or out aspect or matter	Section 6 to 17 ('Topic sections' sub-heading 'baseline conditions')
Aspects and matters to be Scoped In, the report should include details of the methods to be used to assess impacts and to determine significance of effect e.g. criteria for determining sensitivity and magnitude	Section 6 to 17 ('Topic sections' sub-heading 'assessment methodology')
Any avoidance or mitigation measures proposed, how they may be secured and the anticipated residual effects	Section 6 to 17 ('Topic sections' sub-headings 'design mitigation and enhancement measures')
Information Sources	
References to any guidance and best practice to be relied upon	Section 6 to 17 ('Topic sections' sub-heading 'study area and data sources' and 'assessment methodology')
Evidence of agreement reached with consultation bodies e.g. the statutory nature conservation bodies or local authorities	Section 4: Consultation
An outline of the structure of the proposed ES	Section 18: Structure of the Environmental Statement

1.4.4 Transboundary Effects

- 1.4.4.1 Schedule 4 Part 5 of the EIA Regulations requires a description of the likely significant transboundary effects to be provided in an ES where the Proposed Development is likely to have significant impacts on another European Economic Area (EEA) State. PINS has produced guidance on NSIP: Advice on Transboundary Impacts and Process¹⁴ which describes the Applicant's role in providing information about the potential for transboundary effects as part of the EIA Scoping Opinion request.
- 1.4.4.2 Having considered the nature of the Proposed Development and its distance from other EEA states, potential pathways of effect to other EEA states have not been identified, either alone, or cumulatively with other developments and an assessment of transboundary effects is proposed to be **Scoped Out**. It is the Applicant's opinion that Regulation 32 of EIA Regulations does not need to be engaged by the SoS.

1.4.5 Content of the Application and Decision Making

- 1.4.5.1 Regulations 5, 6 and 7 of the APFP Regulations set out the requirements for the documents and information that must accompany an application for development consent. Following completion of the processes outlined in this EIA Scoping Report, taking account of the EIA Scoping Opinion and issues raised during pre-application consultation by the Applicant, a DCO application will be made to the SoS in accordance with the PA 2008 and the application will be accompanied by an ES in accordance with Reg 5(2)(a) of APFP Regulations (as amended).
- 1.4.5.2 Under the Localism Act 2011¹⁵, PINS is responsible for implementing the DCO process and will decide whether or not an application for development consent can be accepted for examination on behalf of the SoS following its submission. Following examination, during the decision making stage, the SoS must determine the Application in accordance with s104(2) of the PA 2008, having regard to the relevant NPS when deciding to grant or not grant DCO. Relevant NPS for the Proposed Development that will form the primary policy context for determination are therefore:
- NPS EN-1 - Overarching NPS for energy⁵ - which sets out general principles and generic impacts to be taken into account in considering applications for energy NSIP;
 - NPS EN-3 - Renewable Energy Infrastructure¹⁶ which addresses impacts and other matters which are specific to solar PV, including site location, selection, site capacity, layout, design and appearance, flexibility in project details, project lifetime, decommissioning and environmental impacts including climate change adaptation and resilience; and
 - NPS EN-5 - Electricity Networks Infrastructure¹⁷ which covers grid connection aspects of solar PV development and includes factors influencing routing, design and other environmental aspects.
- 1.4.5.3 **Section 3: Legislation, Policy Context and Alternatives** provides further information on how the NPS and Draft NPS (published for consultation in 2025) will be taken into consideration in the Application.

1.4.6 Structure of this EIA Scoping Report

- 1.4.6.1 This EIA Scoping Report is structured as follows:
- **Section 1: Introduction** (this Section) - introduces the Proposed Development and the purpose and structure of this EIA Scoping Report.
 - **Section 2: Site Description and the Proposed Development** – provides an overview of the Site and the Proposed Development, including construction, operation and decommissioning information.
 - **Section 3: Legislation, Policy Context and Alternatives** – identifies the key documents relating to national and local planning policy as relevant to the Proposed Development and approach to alternatives, including narrative on how the Proposed Development has been developed to date.
 - **Section 4: Consultation** – provides an overview of the Applicant's approach to consultation on the Proposed Development.
 - **Section 5: Environmental Impact Assessment Methodology** – sets out the requirements for scoping and where these are addressed in this report, the general

approach to EIA, and provides definitions for some of the key terms used within the EIA process.

- **Section 6 – 15: Topic sections** – sets out those environmental aspects (‘topics’) proposed to be included in the scope of the EIA, and in each case, provides a discussion of how the Proposed Development may interact with the different aspects of the receiving environment, together with a description of the proposed assessment methodologies, guidance and best practice to be adopted for the EIA of the Proposed Development (or, as appropriate, its design) for matters¹ that are Scoped In. Where relevant, topic sections also provide a summary of the matters proposed to be **Scoped Out** of the EIA and the reasoning why.
- **Section 16: Other environmental topics** – sets out the approach to topics which are to be considered, but which are not considered to require standalone assessment chapters in the ES.
- **Section 17: Cumulative and in-combination effects** – sets out the approach to the assessment of cumulative effects (the Proposed Development and other developments), and in-combination effects (interrelationships between different environmental effects from the Proposed Development).
- **Section 18: Structure of the Environmental Statement** – presents the proposed structure of the ES.
- **Section 19: Summary and Conclusions** – provides a summary of this EIA Scoping Report and the issues proposed to be Scoped In/**Scoped Out** of the EIA.

¹ The Planning Inspectorate uses the term ‘matters’ referring to those parts that are a subdivision of the aspect (topic section), for example an assessment of a particular species is a ‘matter’ to the aspect of biodiversity.

2. Site Description and the Proposed Development

2.1 Site description

2.1.1 Overview

- 2.1.1.1 A key component of EIA scoping is understanding which receptors should be considered as part of the environmental assessment process.
- 2.1.1.2 A number of environmental receptors have been identified within, and in the vicinity of, the Site, including the Solar Development Site. Where these receptors have been identified within the study area for each assessment topic (**Sections 6-17**) in this EIA Scoping Report, they are identified within the '*baseline conditions*' sub-heading, as appropriate. As such, the list of receptors identified in this section is not intended to be exhaustive but is included for the purposes of describing the Site and its surrounding setting.
- 2.1.1.3 Environmental constraints within the Site and vicinity are illustrated on the following figures:
- **Figure 2.1a: Environmental Constraints – Solar Development Site;**
 - **Figure 2.1b: Environmental Constraints – Solar Development Site;**
 - **Figure 2.2a: Environmental Constraints – Solar Development Site and Grid Cable Route Search Area; and**
 - **Figure 2.2b: Environmental Constraints – Solar Development Site and Grid Cable Route Search Area.**
- 2.1.1.4 Where distances are quoted in this EIA Scoping Report, the distance is defined (unless otherwise stated) as the shortest distance between the receptor and the closest point of the boundary of the Site or part thereof (e.g. Solar Development Site).

2.1.2 Solar Development Site

- 2.1.2.1 The total area of the Solar Development Site is approximately 950 hectares (ha) and is shown in **Figure 1.1: Site Location Plan** and **Figure 1.2: Site Plan Aerial**. The entirety of the Solar Development Site is within the administrative area of RCC.

Agriculture and Soils

- 2.1.2.2 The Agricultural Land Classification (ALC) mapping published by Natural England¹⁸ indicates that the Solar Development Site comprises of some Grade 2 and predominantly Grade 3 land. ALC Grade 1, 2 and 3a are considered to provide the Best and Most Versatile (BMV) agricultural land and are classified as BMV agricultural land. Grade 3b, Grade 4 and Grade 5 are not considered BMV land.

Landscape

- 2.1.2.3 The Solar Development Site is within National Character Area (NCA) 75 – Kesteven Uplands¹⁹ which is characterised as having a gentle rolling, mixed farming landscape

dissected by rivers. It is a deeply rural landscape and has very small urban areas.²⁰

- 2.1.2.4 The Norfolk Coast National Landscape is located approximately 60km east of the Solar Development Site.

Traffic and Transport

- 2.1.2.5 The A1 (Great North Road), which forms part of the Strategic Road Network (SRN) bisects and borders the Solar Development Site. A number of roads including Pickworth Road and a number of unnamed roads also cross the Solar Development Site.
- 2.1.2.6 According to published sources, several public rights of way (PRoW) cross the Solar Development Site. These include:
- a bridleway (RL|230|E120/4) located in the north-west of the Solar Development Site, south-west of, and linking to, the A1;
 - a bridleway (RL|150|E164/1) located in the south-west of the Solar Development Site, south-west of, and linking to, the A1;
 - bridleways (RL|228|E136/1 and RL|232|E136/3) the route of which run approximately north-south in the east of the Solar Development Site, south of Pickworth; and
 - bridleways (RL|232|E163/4; RL|232|E135/1, and RL|232|E163/3) the routes of which run approximately west-east in the north of the Solar Development Site, west of Pickworth.
- 2.1.2.7 In addition, the Rutland Round long distance promoted walking route crosses the Solar Development Site and connects to wider recreational routes across the study area such as Macmillan Way (near Rutland Water), Hereward Way, Jurassic Way (near Stamford) and Viking Way (near Greetham to the west).

Ecology and Biodiversity

- 2.1.2.8 There are no International/ European statutory designated sites within 1km of the Solar Development Site. Rutland Water (Ramsar and Special Area of Protection (SPA)) is located approximately 3.5km south-west of the Solar Development Site. Grimsthorpe Special Area of Conservation (SAC) is located approximately 6.7km north-east and Barnack Hills and Holes SAC is located 9.0km south-east of the Solar Development Site.
- 2.1.2.9 Nationally designated statutory sites located within 500m of the Solar Development Site include:
- Newell Wood Site of Special Scientific Interest (SSSI) comprises an area of acid lowland woodland developed on glacial sands and gravels;
 - Clipsham Old Quarry SSSI, designated as an area of species-rich limestone grassland of county importance;
 - Pickworth Great Wood SSSI, one of the largest blocks of deciduous woodland in Leicestershire which contains stands representative of ancient, semi-natural woodland (ASNW) on clay soils;
 - Bloody Oaks Quarry SSSI located west of the A1, is an area of species rich grassland; and

- Ryhall Pasture and Little Warren Verges SSSI is an example of semi-natural limestone grassland with a species-rich roadside verge.
- 2.1.2.10 Those SSSI within the wider topic study area are set out in **Section 9: Ecology and Biodiversity**.
- 2.1.2.11 There are several areas of ASNW in the vicinity of or immediately adjacent to the Solar Development Site including Pickworth Great Wood (Holywell Wood – ASNW), Woodhead Wood (ASNW and ancient, replanted woodland (ARW)), Bloody Oaks (ASNW), Castledike Wood, Lane Wood and Tickencote Laund (ARW).
- 2.1.2.12 Seventeen non-statutory designated Local Wildlife Sites (LWS) are located within, or in immediate proximity to the Solar Development Site including:-
- A1 Old Gt N Rd slip road, Great Casterton LWS;
 - Verge N of The Grange (west side)/ (east side) LWS;
 - Pickworth Road Roadside Verge Nature Reserve (RVNR) west / east: N of Mounts Lodge LWS;
 - Golf Club Hedgerow, NW side of road LWS;
 - Little Oaks Wood LWS;
 - Bloody Oaks LWS;
 - Empingham crossroads to Bloody Oaks verge LWS;
 - Rutland County golf-club (A1) verge - south and north LWS;
 - Hedge near Three-corner Plantation Empingham LWS;
 - Little Sutie LWS;
 - Empingham (Bloody Oaks) Roadside Verge Nature Reserve LWS;
 - Hedgerow, Empingham adj Golf club (SE side) LWS;
 - Woodhead and Castle mound LWS; and
 - Grassland in 3-corner Plantation LWS.
- 2.1.2.13 LWS located in the wider topic study area are described in **Section 9: Ecology and Biodiversity**.

Cultural Heritage

- 2.1.2.14 There are no designated heritage assets within the Solar Development Site although a number of designated heritage assets are located directly adjacent to the Solar Development Site.
- 2.1.2.15 The Tickencote Conservation Area is located 140m to the west of the Solar Development Site beyond the A1. The Great Casterton Conservation Area is located 375m to the south-east of the Solar Development Site.
- 2.1.2.16 Exton Park, a Grade II listed registered park and garden [NHLE 1000960] is located immediately adjacent and to the west of the Solar Development Site.
- 2.1.2.17 There are a number of listed buildings within proximity to the Solar Development Site. With the exception of the Grade I listed Church of St Peter [National Heritage List for England - NHLE 1115498] located approximately 270m west, within Tickencote Conservation Area, all listed buildings within 500m of the Solar Development Site are

Grade II listed. Those in the immediate vicinity of the Solar Development Site include:

- in proximity to Pickworth, The Grange, [NHLE 1073807] a Grade II listed building, approximately 80m west of the Solar Development Site (noting the Solar Development Site is in proximity to the north and east of the listed building);
- in proximity to Pickworth, Lime Kiln (Ordnance Survey Reference SK988138) [NHLE 1078221] approximately 120m west, Arch from Medieval Church [NHLE 1073806] 270m south and east and Church of All Saints [NHLE 1115634] 305m south and east of the Solar Development Site;
- Christians Lodge [NHLE 1115640], a Grade II listed building, approximately 350m south-east of the Solar Development Site; and
- Within Tickencote, a cluster of Grade II listed buildings including Dawsons Cottage [NHLE 1320413], Losecoat Cottage [NHLE 1073778] both located around 215m west of the Solar Development Site and Peacocks Cottage and Range of Outbuildings to the North [NHLE 1361514] located along Church Lane, with further Grade II listed buildings beyond this within the Tickencote Conservation Area.

2.1.2.18 Scheduled monuments located within 500m of the Solar Development Site include:

- Castle Dyke moated site [NHLE 1019097] approximately 60m north-east of the Solar Development Site;
- Woodhead Castle ringwork bailey and fishpond [NHLE 1010923] approximately 90m east of the Solar Development Site; and
- Horn deserted medieval village and moated site [NHLE 1017848] approximately 220m west of the Solar Development Site, west of the A1.

2.1.2.19 Designated and non-designated heritage assets located in the wider topic study area are described in **Section 8: Cultural Heritage**.

Water Resources

2.1.2.20 The Environment Agency ‘Flood map for planning’ indicates that the whole of the Solar Development Site is located within Flood Zone 1 (defined as land that has a less than 0.1% annual exceedance probability (AEP) of flooding from rivers or the sea) and is therefore at a low risk of flooding. The flood maps also indicate that the Solar Development Site is primarily located within an area of no to low change of surface water flooding (between 0.1% and 1% chance each year).

2.1.2.21 There are no main rivers or ordinary watercourses located within the Solar Development Site. River Gwash is located 200m to the south of the Solar Development Site; North Brook is located 260m to the west and the West Glen River is located 930m to the north of the Solar Development Site.

2.1.2.22 A number of ordinary watercourses and water bodies are present within the Solar Development Site.

Human Receptors

2.1.2.23 There are no residential receptors within the Solar Development Site. The Proposed Development will be designed appropriately considering the location of human

receptors. The nearest sensitive human receptors to the Solar Development Site are set out in **Section 12: Noise and Vibration**.

2.1.3 Grid Cable Route Search Area

2.1.3.1 A new high voltage (HV) electrical grid connection will be required to connect the Solar Development Site to a National Grid Substation which will allow the Proposed Development to export electricity to the transmission network. The route to connect to a National Grid Substation is subject to ongoing feasibility work as described in **Section 2.3: Electricity Export Connection to National Grid**.

2.1.3.2 **Figure 1.4: Parts of the Site Referred to in the EIA Scoping Report** shows the areas under consideration for Grid Connection Cables within the Grid Cable Route Search Area. A number of potential route options are currently under consideration:

- A Northern Grid Cable Route Search Area: approximately 8km in length, which extends from the north-eastern corner of the Solar Development Site, north-east towards Careby and then north towards Swayfield and Burton-Le-Coggles, where it could connect to a new National Grid Substation.
- A Middle Grid Cable Route Search Area: approximately 11km in length, which extends from the south-east section of the Solar Development Site, heading east to the north of Ryhall village to connect with a new National Grid Substation.
- A Southern Grid Cable Route Search Area: approximately 13km in length, which extends from the south-east section of the Solar Development Site, heading south-east, to the north of Stamford and south of Ryhall village. It then passes south-west where it could connect to the existing National Grid Substation at Ryhall.

2.1.3.3 Each part of the Grid Cable Route Search Area contains a wide route corridor (approximately 1km in width) that is being considered at EIA Scoping stage to provide flexibility in the routing to take account of environmental, technical, planning and land constraints, as well as physical features known in the vicinity of the Proposed Development whilst further studies are carried out to allow corridor routing and area optionality to reduce over the pre-application period. The total area of the Grid Cable Route Search Area is approximately 2977ha and is shown in **Figure 1.4: Parts of the Site Referred to in the EIA Scoping Report**. The Grid Cable Route Search Area enters SKDC and LCC (neighbouring councils to RCC). The majority of the Grid Cable Route Search Area consists of agricultural land. The proposed Order Limits will encompass the Limits of Deviation (LoD), covering the maximum parameters within which the underground cable sections would be located. The LoD are often applied to the horizontal alignment but may also include the maximum depth below ground. The assessment within the ES will be based on the maximum LoD as defined in the draft DCO. This would provide flexibility regarding any deviations in the alignment during detailed design.

2.1.3.4 A number of environmental receptors have been identified within the vicinity of the Grid Cable Route Search Area, each of these are described below and shown by **Figure 2-2a: Environmental Constraints – Solar Development Site and Grid Cable Route Search Area** and **Figure 2-2b: Environmental Constraints – Solar Development Site and Grid Cable Route Search Area**.

Agriculture and Soils

- 2.1.3.5 The ALC mapping published by Natural England¹⁸ indicates that the Grid Cable Route Search Area comprises of a mixture of Grade 2, Grade 3 and Grade 4 land.

Landscape

- 2.1.3.6 The Grid Cable Route Search Area is of similar landscape character to the Solar Development Site, comprising predominantly agricultural land, undulating in parts, with topography influenced by watercourses in places. Hedgerows, trees and farmsteads are present across the landscape with a generally limited number of residential visual receptors given its agricultural nature. Views from PRow are present across the Grid Cable Route Search Area, with screening provided in places by existing woodland blocks. PRow are highlighted below under Traffic and Transport.
- 2.1.3.7 The Grid Cable Route Search Area is within NCA 75 – a description is provided in paragraph 2.1.2.3.

Traffic and Transport

- 2.1.3.8 The Grid Cable Route Search Area intersects a number of A roads and minor roads. Key roads are outlined below:
- the Northern Grid Cable Route Search Area is not crossed by any A or B roads. The nearest B road is the B1176 which connects with the A6121 to the south and the A151 to the north. Various unclassified roads cross the Northern Grid Cable Route Search Area, including two unclassified routes connecting to the A1;
 - the Middle Grid Cable Route Search Area crosses the A6121 Stamford Road which runs approximately north to south. The A6121 connects via Stamford to a grade separated junction on the A1. The A6121 also intersects the B1176 (Little Blytham Road /Swinstead Road) at Ryhall. The Middle Grid Cable Route Search Area also intersects several unclassified roads; and
 - the Southern Grid Cable Route Search Area intersects the A6121 and A1175 (Main Road/ Stamford Road) which runs approximately east-west. The Southern Grid Cable Route Search Area also intersects the B1176 (Stamford Road) which runs approximately north-south as well as various unclassified roads including Pickworth Road, Ryhall Road, Tolethorpe, Little Casterton Road, Newstead Lane, Essendine, Greatford Road and Tallington Road.
- 2.1.3.9 The Grid Cable Route Search Area also intersects a number of PRow along their routes. These include:
- bridleway RL|228|E136/1 which crosses the Middle Grid Cable Route Search Area, running west-east;
 - footpaths RL|228|E166/1, RL|228|E166/2, which cross the Middle Grid Cable Route Search Area, running north-south;
 - footpaths RL|180|E167/2 and RL|206|E167/3 which cross the Middle Grid Cable Route Search Area, running in a north-west to south-east direction;
 - footpaths RL|206|E168/1 and RL|206|E168/2 which cross the Middle Grid Cable Route Search Area, running in a north-west to south-east direction;

- footpath RL|206|E172/2 which crosses the Middle Grid Cable Route Search Area, running north-south;
- footpaths RL|180|E176/1, RL|206|E176/2, RL|180|E176/3 and RL|180|E176/4 which cross the Middle Grid Cable Route Search Area, running approximately north-south;
- footpath RL|206|E231/1 which crosses the Middle Grid Cable Route Search Area, running approximately north-south;
- footpath RL|206|E174/1 which crosses the Middle Grid Cable Route Search Area, running approximately north-south;
- footpath LL|Uffi|5/1 which crosses the Middle Grid Cable Route Search Area, running west-east;
- footpath LL|Uffi|6/1 which crosses the Middle Grid Cable Route Search Area, running north-east to south-west;
- footpath LL|Uffi|7/1 which crosses the Southern Grid Cable Route Search Area, running approximately north-south;
- footpath PE|Bainton|4 which crosses the Southern Grid Cable Route Search Area, running approximately south-west to north-east;
- footpath LL|Tall|1001/1 which crosses the Southern Grid Cable Route Search Area, running approximately west-east;
- byway RL|232|E123/1#1, which cross the Northern Grid Cable Route Search Area, running approximately west-east;
- restricted byway LL|Care|3/1 which cross the Northern Grid Cable Route Search Area, running approximately north-west to south-east;
- restricted byway LL|Care|1/1 and footpath LL|LByt|3/1 which cross the Northern Grid Cable Route Search Area, running approximately south-west to north-east;
- footpath LL|Coun|3/1 which crosses the Northern Grid Cable Route Search Area running approximately south-west to north-east;
- footpath LL|Cast|5/1 and restricted byways LL|Cast|8/3 and LL|Cast|8/2, which cross the Northern Grid Cable Route Search Area, running approximately south-west to north-east; and
- footpath LL|Sway|10/1 which crosses the Northern Grid Cable Route Search Area running approximately south-west to north-east.

2.1.3.10 In addition, the Macmillan Way long distance path (Boston to Abbotsbury) promoted route crosses the Middle and Southern Grid Cable Route Search Area.

Ecology and Biodiversity

2.1.3.11 There are no International/ European statutory designated sites within the Northern Grid Cable Route Search Area. The following sites are adjacent to the Northern Grid Cable Route Search Area:

- Holywell Banks, SSSI;
- Holywell Wood, ancient woodland;
- Pattinsons Holt, ancient woodland;
- Lawn Wood, ancient woodland;
- Dodsey Wood, ancient woodland;
- Great Osgrove Wood, ancient woodland; and
- High Wood, ancient woodland.

- 2.1.3.12 Castle Bytham Quarry SSSI is approximately 475m west of the Northern Grid Cable Route Search Area and Grimsthorpe Park SSSI is approximately 870m east of the Northern Grid Cable Route Search Area.
- 2.1.3.13 East Wood, Great Casterton, SSSI and ancient woodland, and Toilethorpe Oaks, ancient woodland, are both approximately 20m to the north of the Northern Grid Cable Route Search Area. Woodhead ancient woodland is approximately 390m to the north of the Northern Grid Cable Route Search Area. Ryhall Pasture and Little Warren Verges, SSSI, is approximately 650m to the north of the Northern Grid Cable Route Search Area.
- 2.1.3.14 There are no International/ European statutory designated sites within the Middle Grid Cable Route Search Area. East Wood, Great Casterton SSSI and Toilethorpe Road Verges SSSI are adjacent to the Middle Grid Cable Route Search Area.
- 2.1.3.15 There are no International/ European statutory designated sites within the Southern Grid Cable Route Search Area. The Southern Grid Cable Route Search Area is the closest to Rutland Water (SSSI, SPA and RAMSAR) at 5.3km from its closest point.
- 2.1.3.16 Further information on designated and non-designated ecological sites is presented in **Section 9: Ecology and Biodiversity**.

Cultural Heritage

- 2.1.3.17 The Northern Grid Cable Route Search Area does not intersect any listed buildings, conservation areas, scheduled monuments or registered parks and gardens. Holywell Hall Park, a Grade II listed registered park and garden [NHLE 1444034] is adjacent to the Northern Grid Cable Route Search Area. Within Holywell Hall Park are five Grade II and four Grade II* listed buildings. A scheduled monument, Castle Bytham Castle [NHLE 1014681], associated town defences and ponds is adjacent to the Northern Grid Cable Route Search Area. There are approximately 59 listed buildings within 500m of the Northern Grid Cable Route Search Area.
- 2.1.3.18 The Middle Grid Cable Route Search Area does not intersect any listed buildings, conservation areas, scheduled monuments or registered parks and gardens. Ryhall Conservation Area is approximately 15m south of the Middle Grid Cable Route Search Area and contains 19 listed buildings (including The Church of St John [NHLE 1320352], a Grade I listed building, approximately 400m south of the Middle Grid Cable Route Search Area). Outside of Ryhall Conservation Area, there are approximately 12 listed buildings within 500m of the Middle Grid Cable Route Search Area and one scheduled monument (Woodhead Castle ringwork bailey and fishpond [NHLE 1010923]).
- 2.1.3.19 The Southern Grid Cable Route Search Area does not intersect any listed buildings, conservation areas, scheduled monuments or registered parks and gardens. Causewayed camp [NHLE 1004938], a scheduled monument, is surrounded by the Southern Grid Cable Route Search Area (but is excluded from the Site). Uffington Park [NHLE 1470336], a Grade II registered park and garden, is approximately 20m south of the Southern Grid Cable Route Search Area and the Air photography site NE of village and site of Roman town [NHLE 1005067], a scheduled monument, is approximately 100m

south of the Southern Grid Cable Route Search Area. Little Casterton and Toilethorpe Conservation Area is adjacent to the Southern Grid Cable Route Search Area and contains 14 listed buildings. Excluding the listed buildings within Little Casterton and Toilethorpe Conservation Area, there are 53 listed buildings within 500m of the Southern Grid Cable Route Search Area.

- 2.1.3.20 Designated and non-designated heritage assets located in the wider topic study area are described in **Section 8: Cultural Heritage**.

Water Resources

- 2.1.3.21 The majority of the Grid Cable Route Search Area are within areas of Flood Zone 1. There are small areas of Flood Zone 2 and 3 associated with rivers and watercourses that cross the Site.
- 2.1.3.22 Main rivers and ordinary watercourses that cross or are located in proximity to the Grid Cable Route Search Area include:
- The Tham, a main river, which crosses the Northern Grid Cable Route Search Area running east-west approximately parallel to Little Bytham Road;
 - Holywell Brook, a main river, which crosses the Northern Grid Cable Route Search Area running approximately north-west to south-east;
 - West Glen River, a main river, and an unnamed tributary of West Glen River (ordinary watercourse) cross the Northern Grid Cable Route Search Area;
 - the River Gwash, a main river, crosses or intersects the Southern Grid Cable Route Search Area at two locations;
 - an unnamed tributary of the West Glen River (ordinary watercourse) is located within 10m of the Middle Grid Cable Route Search Area; and
 - the River Welland (Old Course) and River Welland (main rivers) together with their tributaries, cross the eastern section of the Southern Grid Cable Route Search Area.

Human Receptors

- 2.1.3.23 Key residential receptors along the Grid Cable Route Search Area include the settlements of:
- Belmesthorpe;
 - Careby;
 - Castle Bytham;
 - Counthorpe;
 - Creeton;
 - Essendine;
 - Great Casterton;
 - Holywell;
 - Little Bytham;
 - Little Casterton;
 - Pickworth;
 - Ryhall;
 - Swayfield;
 - Tallington; and

- Uffington.

2.1.3.24 The nearest sensitive human receptors to the Solar Development Site are set out in **Section 12: Noise and Vibration**.

2.2 Description of the Solar Development Site

2.2.1 Introduction

2.2.1.1 The Proposed Development consists of a proposed solar farm with Battery Energy Storage System (BESS). The Proposed Development's planning boundary (Order Limits at the time of Application submission) will include the Solar Development Site, which will form the majority of the Proposed Development, the Grid Connection Cables solution to connect the Solar Development Site with the NGET system, and areas yet to be defined for Highway Works, i.e. areas proposed for improvement works to facilitate access to the Solar Development Site. The Site therefore currently includes the Solar Development Site and land for each of the options under consideration for the Grid Connection (the Grid Cable Route Search Area).

2.2.2 Overview of Solar and Battery Storage Infrastructure

2.2.2.1 The principal infrastructure will be as follows:

- solar PV panels;
- module mounting structures;
- field station(s) (housing inverters, transformers and switch gear);
- HV switchgear and control equipment (housed inside a building);
- a BESS;
- on-site electrical compounds comprising substations and control buildings;
- on-site cabling (cabling within the Solar Development Site – to connect the solar PV areas with the On-Site Substation(s));
- a spare parts storage area or enclosure;
- fencing and security measures;
- access tracks; and
- landscaping and biodiversity enhancement.

2.2.2.2 During the construction phase, one or more temporary construction compound(s) will be required as well as temporary roadways to facilitate access to all land within the Site. The locations of these construction compounds and accesses are not known at this stage and their locations will be selected based on technical and environmental surveys/optioneering.

2.2.2.3 In areas around the PV arrays and on other land within the Solar Development Site, opportunities for landscaping, biodiversity enhancements and habitat management will be explored. The Applicant is committing to a minimum of 10% Biodiversity Net Gain (BNG) for the Proposed Development.

2.2.3 Solar PV infrastructure

2.2.3.1 The dimensions identified below for each component are highly dependent on the

findings of ongoing studies and all dimensions are therefore subject to refinement and will be confirmed following completion of the iterative design and assessment process.

Solar PV modules

- 2.2.3.2 Solar PV modules convert sunlight into electrical current (as direct current (DC)). Individual panels are up to 4m in height and typically consist of a series of PV cells beneath a layer of toughened glass. Other PV technologies are developing rapidly and may be available at the time of construction. The module frame is typically built from anodised aluminium or steel. The modules are fixed to a mounting structure in groups known as ‘strings’. Various factors will help to inform the number and arrangement of modules in each string, and it is likely some flexibility will be required to accommodate future technology developments. Details of any flexibility/ optionality and potential environmental effects will be set out in the ES that accompanies the Application.
- 2.2.3.3 Fixed panel orientation is proposed for the Proposed Development. This means modules would face to the south, which is commonly adopted on existing UK solar farms. With this configuration, the modules would be angled towards the south at a slope of 10 to 45 degrees from horizontal. A reasonable worst-case scenario will be assessed and presented in the ES.

Module Mounting Structures

- 2.2.3.4 Each string of modules will be mounted on a metal rack, known as a frame. In all fixed panel options, the frames are usually supported by galvanized steel poles typically driven 1m - 2m into the ground. This is the most common solution on existing UK solar farms.
- 2.2.3.5 The panel modules across the Solar Development Site are likely to be mounted on structures with a clearance above ground level (AGL) of up to 1m, and a maximum height of up to 4m AGL. These dimensions are indicative and considered the reasonable worst-case at this stage. The final elevations of the racks will be influenced by various design factors such as local topography, flood risk and configuration.

2.2.4 Supporting Infrastructure (inverter, transformer, and switchgear)

- 2.2.4.1 Supporting infrastructure comprises inverters, transformers, and switchgear, which will be mounted on concrete foundations. This infrastructure is commonly termed ‘Field Stations’ and fulfil a number of functions, namely converting the DC to alternating current (AC) and stepping up the voltage so it can be exported to the National Grid, as well as containing isolators and monitoring equipment.
- 2.2.4.2 Different options are under consideration for the Field Station(s), but it is considered likely the components will be within containerised units. As the Proposed Development design develops, the configuration of the Field Station(s) will be determined based upon environmental, technical and commercial factors. A reasonable worst-case scenario will be assessed and presented in the ES.

Inverters

- 2.2.4.3 It is currently anticipated that either string or central inverters would be used. One single string inverter unit could be utilised, for example, for every 20 to 24 strings. String inverters are small enough to be mounted beneath the modules.
- 2.2.4.4 Central inverters are much larger because there are fewer of them, and they require their own electrical cabinet enclosures. These are usually located at regular intervals amongst the PV arrays, and they occupy an area that depends on such intervals.

Transformers

- 2.2.4.5 Transformers are required to step up the voltage of the electricity generated across the Proposed Development before it reaches the substation. Transformer containers are therefore likely to be located across the Solar Development Site at regular intervals. Central transformers would be housed in a container alongside inverters and switchgear with dimensions of approximately 12.5m by 2.5m and max height of 3.5m.
- 2.2.4.6 Indoor transformers can be installed in a cabin, jointly with indoor switchgear, typically with a footprint of around 8m x 5m and with a height of 3.5m. Transformer cabins are typically externally finished in keeping with the prevailing surrounding environment, often with a green painted finish. Alternatively, transformers can be installed in a high cube container together with an inverter and switchgear as part of an indoor power conversion station. As the Proposed Development design develops, the likely configuration of equipment will be determined based upon environmental and technical factors. The ES will set out a clear set of maximum (and where relevant minimum) parameters that will form the basis of the assessment.

Switchgear

- 2.2.4.7 Switchgear are the combination of electrical disconnecter switches, fuses or circuit breakers used to control, protect and isolate electrical equipment. Switchgear is also used to de-energise equipment to allow maintenance work to be done and to clear faults downstream.
- 2.2.4.8 As described in paragraph 2.2.4.6, switchgear can be also located in a cabin together with the transformer and inverter. As the Proposed Development design develops, the likely configuration of equipment will be determined based upon environmental and technical factors. The ES will set out a clear set of maximum (and where relevant minimum parameters) that will form the basis of the assessment.

2.2.5 Battery Energy Storage System (BESS)

- 2.2.5.1 The Proposed Development will include an associated BESS. The BESS is designed to provide peak generation and grid balancing services to the electricity grid. It will do this primarily by allowing excess electricity generated from the solar PV panels to be stored in batteries and dispatched when required. It may also import surplus energy from the electricity grid.
- 2.2.5.2 There are a number of different designs for the BESS that are being considered as part

of the iterative design process. Maximum parameters for the compound layouts will be defined in the DCO application in order to present and assess a reasonable worst-case in the EIA.

- 2.2.5.3 Batteries will either be in individual enclosures or housed within a larger building or buildings. The precise number of individual battery storage enclosures will depend upon the level of power capacity and duration of energy storage that the Proposed Development will require; investigations are ongoing to determine this. There needs to be an element of flexibility in this aspect as both the technology and business models are evolving, together with relevant policy which may affect the business case and support for the systems.
- 2.2.5.4 The location of the BESS, transformers, and dedicated switchgear will be determined by the outcome of the environmental surveys and assessment work to identify suitable location where environmental impacts are minimised, as far as reasonably practicable, whilst balancing the technical and commercial requirements of the Proposed Development. They will be located together in one or more centralised areas.
- 2.2.5.5 The BESS provides flexibility and grid reliability. The total size and distribution of the battery stations across the Site will depend largely on the existing grid conditions at the time of construction design. The BESS would comprise DC/ DC converters to control the charge of the batteries from the PV energy output and/ or AC/ DC inverters to control their charge using energy drawn from the grid. Depending on the same parameters, the battery storage system may be installed in one or multiple compound areas with dimensions (footprint) of approximately 210m x 290m. The BESS containers are expected to be up to 4.5m in height.
- 2.2.5.6 Each BESS will require a heating, ventilation and cooling (HVAC) system to ensure the efficiency of the batteries, which are integrated into the containers. This may involve a HVAC system that is external to the containerised unit located either on the top of the unit or attached to the side of the unit. If this uses air to heat and cool it will have a fan built into it that is powered by auxiliary power.
- 2.2.5.7 The Switchgear/ Control Room operates, isolates, and controls the exported power from the energy storage system. This would comprise a building of similar dimensions to the containers; either an adapted container or built from glass reinforced plastic (GRP), located within the main BESS compound.
- 2.2.5.8 As the Proposed Development design develops, the likely configuration of equipment will be determined based upon environmental and technical factors. A reasonable worst-case scenario will be assessed and presented in the ES.

2.2.6 Interconnecting Cabling

- 2.2.6.1 To connect the different solar PV areas, interconnecting cabling is required. This will consist of buried underground cabling with a medium voltage of 33KV with earthing and communication cables.
- 2.2.6.2 The maximum trenching width will be approximately 2m with a depth, when crossing agricultural land, up to 1.5m (unless crossing other services or other key infrastructure).

When crossing the solar PV areas, the maximum depth is likely to be reduced and will be confirmed in the ES that accompanies the Application.

2.2.7 On-Site Cabling

- 2.2.7.1 Low voltage on-site electrical cabling is required to connect the PV modules and BESS units to inverters (typically via 1.5/1.8kV cables), and the inverters to the transformers on-site (typically via 0.6/1 kV cables). The dimension of the trenches will vary depending on the number of ducts they contain but could typically be up to 2m in width and 0.8m to 1.4m in depth.
- 2.2.7.2 Higher voltage cables (around 33kV) are then required between the transformers and the switchgear and from switchgear to the on-site electrical infrastructure. The dimension of the trenches will vary depending on the number of circuits they contain but could be typically up to 2m in width and up to 1.4m in depth. Where possible, the higher voltage cables will share trenches with the lower voltage cables on the same route.
- 2.2.7.3 Cabling between PV modules and the inverters will typically be required to be above ground (along a row of racks), fixed to the mounting structure, and then underground (between racks and in the inverter's input). All other on-site cabling will be underground as far as reasonably practicable.
- 2.2.7.4 Data cables will also be installed, typically alongside electrical cables in order to allow for the monitoring during operation, such as the collection of solar data from pyranometers and inverters.

2.2.8 On-Site Substation(s)

- 2.2.8.1 There are a number of different designs being considered. If a single On-Site Substation compound is chosen, it could have a footprint of up to 150m x 150m in plan and up to approximately 11m in height. This would comprise two Super Grid Transformers and associated electrical infrastructure. Two smaller On-Site Substations could be adopted adjacent to each other, and these would have a similar footprint.
- 2.2.8.2 The On-Site Substation(s) will consist of electrical infrastructure such as the transformers, switchgear and metering equipment required to facilitate the export of electricity from the Solar Development Site to the National Grid. The On-Site Substation(s) are also expected to include up to two control buildings, with dimensions of approximately 45m x 8m and up to 6m in height. This will include office space and welfare facilities as well as operational monitoring and maintenance equipment. Each control building would be a painted block building with external colours and finishes to be agreed prior to construction.
- 2.2.8.3 Maximum parameters for the On-Site Substation(s) compound will be defined in the DCO application, and a reasonable worst-case scenario will be assessed and presented in the ES.

2.2.9 Storage Area

- 2.2.9.1 A storage area comprising up to two storage containers is likely to be required within

the Solar Development Site.

2.2.10 Fencing and Security

- 2.2.10.1 A security fence will enclose the operational areas of the Solar Development Site. The fence is likely to be a deer fence or other mesh security fencing, approximately 2.5m in height. Pole mounted internal facing closed circuit television (CCTV) systems are also likely to be deployed around the perimeter of the operational areas of the Site. It is anticipated that these would be approximately 5m high. CCTV cameras would have fixed view sheds and will be aligned to face along the fence and not pointing in the direction of any residential receptors.
- 2.2.10.2 It is likely that lighting sensors for security purposes will be deployed around the electrical infrastructure and potentially at other pieces of critical infrastructure. No areas are proposed to be continuously lit. It is anticipated that the lighting will be controlled via infrared motion sensor controls and so the Solar Development Site will not be lit at night.
- 2.2.10.3 The On-Site Substation(s) will also be fenced. This is likely to be metal palisade fencing, approximately 2.5m in height.

2.2.11 Site Access and Access Tracks

- 2.2.11.1 Operational access to the Proposed Development (Solar Development Site) is expected to be from rural roads off the A1 (Great North Road) and surrounding the Site. At this preliminary stage, it is anticipated that there will be a number of points of access required during the operational stage, including dedicated emergency accesses into the Solar Development Site. There will be ongoing engagement with the relevant highway authorities in respect of Site access.

2.2.12 Surface Water Drainage

- 2.2.12.1 An outline Drainage Strategy will be developed alongside the ES outlining how surface water from the Proposed Development will be managed in order to prevent any increase in flood risk and considering the principles of Sustainable urban Drainage Systems (SuDS). This would be developed into a detailed drainage strategy prior to construction. It will provide suitable measures to manage drainage from new infrastructure required by the Proposed Development (e.g. PV panel arrays, access tracks and areas of hardstanding across the Site) and manage any required changes to existing land drainage arrangements.
- 2.2.12.2 The design of new drainage systems will be based on the Flood Risk Assessment (FRA) and the hydrological assessment which will be undertaken as part of the ES that accompanies the Application.
- 2.2.12.3 Infiltration drainage design will be in accordance with Building Research Establishment (BRE) Digest 365: Soakaway Design and Sewers for Adoption²¹ and infrastructure will be placed at least 10m away from the bank top of all watercourses (other than where these watercourses are to be crossed).

2.2.13 Biodiversity and Landscaping

- 2.2.13.1 The Proposed Development will involve new planting, field boundary enhancement and planting of seed mixes within the Solar Development Site. Planting will also be used to provide screening where required. The enhancements and planting would increase biodiversity throughout the landscape and contribute to the Proposed Development achieving BNG in line with the requirements of the Environment Act 2021²².

2.3 Electricity Export Connection to National Grid

2.3.1 Existing Grid Connection Offer

- 2.3.1.1 The Applicant (formerly known as Great Casterton Energy Park Limited) has received a Bilateral Connection Agreement from NGET for the connection of Kilnside Energy Park to the transmission network. This identifies that a new 400kV substation would be required, referred to as 'West Anglia connection Node G 400kV Substation (formerly at Casewick 400kV substation)'. This new substation is required to increase capacity on the network to facilitate delivery of a number of projects, so is not only required for Kilnside Energy Park.

2.3.2 Weston Marsh to East Leicestershire

- 2.3.2.1 During the preparation of this EIA Scoping Report, on 11 June 2025, National Grid commenced a non-statutory public consultation for a proposed new 400kv overhead line and two new proposed 400kv substations between Weston Marsh in Lincolnshire and East Leicestershire.
- 2.3.2.2 The Weston Marsh to East Leicestershire (WMEL) project² is part of the Great Grid Upgrade and one of the proposed new substations (WMEL-A) is located approximately 6km north of the Solar Development Site.
- 2.3.2.3 At this point in time, it is not yet known whether WMEL-A will be the substation referred to in the Applicant's grid connection offer, and the exact location of the WMEL substations are still to be determined. This will be dependent on many factors such as technical, design and environmental factors, as well as other factors outside the control of the Applicant. This includes the requirements of National Grid, the owners of the national transmission network infrastructure, and their further appraisal and connection considerations.
- 2.3.2.4 The Applicant continues to engage with NGET on the process for determining the location of the new substation referred to in the grid connection offer, whether that be on the existing 400kV line or the new one proposed as part of WMEL, as the point of connection (PoC) for the Proposed Development.
- 2.3.2.5 Ongoing discussions have also included consideration of the potential for a connection at the existing Ryhall Substation if any capacity were available or an expansion were feasible, as an alternative connection point for the Proposed Development.

² [Document library \(Weston Marsh\) | National Grid](#)

2.3.2.6 The Applicant continues to engage with NGET on this process and approach. As part of this, the Applicant has undertaken their own assessment work to inform discussions with NGET regarding the location of the new National Grid Substation. This has included discussion of the potential for a connection at the existing Ryhall Substation if any capacity were available or an expansion were feasible, as an alternative to the need for a new National Grid Substation.

2.3.3 Connection of the Proposed Development to the National Grid

2.3.3.1 The electricity generated by the Proposed Development is expected to be exported via interface cables to the National Grid Substation. The cabling will be installed underground. Further feasibility studies and options appraisals are to be undertaken to determine the preferred routing and installation method for the cable.

2.3.3.2 For the purposes of the ES, there will be no assessment made of the National Grid Substation beyond that of the underground cables which will range from 33kV to 400kV in voltage and be laid within the draft Order Limits. The National Grid Substation will, however, be included within the cumulative schemes considered as part of Chapter 17: Cumulative and In-combination Effects of the ES.

2.3.3.3 The Grid Cable Route Search Area is shown in **Figure 1.4: Parts of the Site Referred to in the EIA Scoping Report**. Once there is greater certainty of the location of the PoC (subject to ongoing discussion with National Grid), further studies and assessments will be undertaken to allow corridor routing and area optionality to reduce over the pre-application period, whilst meeting the objective of minimising overall environmental and social impacts.

2.4 Environmental Design

2.4.1.1 The design of the Proposed Development aims to avoid environmental impacts where possible and to integrate the Proposed Development into the wider landscape from the outset. This has been informed by understanding the environmental constraints of the Site and seeking to guide development away from the most sensitive features and areas, whilst protecting space for the appropriate mitigation that will be required.

2.4.1.2 As part of the design approach, a set of Design Principles and mitigation measures are guiding the design of the Proposed Development. This includes minimum offsets from natural features that will be applied including (from fencing or solar development area as applicable):

- retention of all veteran and ancient trees and, as far as reasonably practicable, Grade A trees (highest quality);
- 15m buffer from solar development /fencing to ancient and veteran trees, trees and other woodland informed by biodiversity requirements and arboricultural surveys;
- 5m buffer from hedgerows to fence line;
- retention of the field boundaries and enhancement of hedgerow boundaries to maximise landscape integration where appropriate;
- careful consideration of cable routing to avoid or minimise impacts on valued landscape features and habitats;
- loss of woodland and hedgerow will be kept to a minimum and only to facilitate access points, cable routing and fencing. Where such loss is unavoidable,

vegetation will be reinstated following construction as far as reasonably practicable;

- access tracks and cable routing will be located to pass through existing gates and gaps in hedgerows where feasible;
- a minimum 10m offset to be maintained from the bank top of all watercourses from all infrastructure (including fencing) and construction works (other than where these watercourses are to be crossed);
- suitable stand offs (to be determined dependent on construction activities, local conditions and receptors to prevent derogation) from springs, spring catchments or boreholes;
- 5m from existing ponds;
- construction compounds will be located on low diversity habitat;
- seeking to site access tracks, construction compounds and On-Site Substation(s) on the lowest quality agricultural land available within each parcel;
- 15m buffer from ecologically statutory and non-statutory designated sites;
- 30m buffer from active badger setts;
- solar PV set back 5m from roads;
- development of an environmental masterplan incorporating screening mitigation and filter planting;
- use of new planting to provide visual screening, to break-up of the extent of development and to link existing habitats will be provided;
- existing hedgerows in poor condition/ gappy will be reinforced with planting/ management where feasible where this does not adversely affect the setting of heritage assets;
- visible structures such as On-Site Substation(s), fencing, BESS, inverters will be blended into the landscape through the careful selection of colours and/ or cladding;
- the Proposed Development would generally not be lit. Use of artificial lighting may be required during construction in the winter months; however during operation lighting would be limited to where it is required for security purposes e.g. around electrical infrastructure and potentially at other pieces of critical infrastructure or for emergency access;
- avoidance of physical disturbance through design, including appropriate stand offs between designated heritage assets and areas of construction activity;
- if below ground archaeology constraints arise through further site investigation, the module mounting structures of solar PV panels will avoid impacts to these through alterations to the layout (where remains of high importance are identified) or will utilise options such as ballast slabs, anchor, or block which sit on the ground surface where this is necessary and appropriate to mitigate any impacts to the archaeological remains;
- an appropriate buffer will be maintained between residential properties and construction areas;
- existing access to businesses, community facilities/ assets to be maintained at all times or a suitable equivalent provided;
- The solar PV infrastructure will be designed in consideration of the network of PRow and promoted route that cross the Solar Development Site, described in paragraph 2.1.2.6;
- maintaining access to PRow during the construction phase or otherwise providing signed temporary diversion routes if required;
- appropriate offsets from PRow will be considered;

- the Applicant will explore construction heavy goods vehicle (HGV) route options with an aspiration to avoid sensitive receptors where feasible including seeking to minimise construction HGV movements through Great Casterton;
- siting sources of operational noise (i.e. inverters) will be located as far as reasonably practicable from existing noise sensitive receptors;
- new crossings of watercourses would be avoided insofar as reasonably practicable, with a preference to re-use existing crossing points and structures wherever possible;
- where major watercourse crossings are required for the Grid Connection Cables, trenchless techniques will be utilised as far as reasonably practicable i.e. horizontal directional drilling (HDD) under rivers (other trenchless techniques may also be considered);
- SuDS will be provided at source, where practicable and will be considered in the outline Drainage Strategy that accompanies the ES, so that surface water runoff is managed consistently with existing site conditions;
- internal access tracks will be permeable to allow water to filtrate through and maintain greenfield runoff rates;
- suitable stand offs (to be determined dependent on construction activities, local conditions and receptors to prevent derogation) from springs, spring catchments or boreholes;
- use of underground cabling methodology that minimises disruption to the ground (e.g. a cable plough which cuts, installs and backfills in one operation);
- use of piling methodology that minimises likelihood of creating pollution pathway to groundwater;
- minimising areas of hardstanding required for laydown and construction compounds; and
- the integrity of existing agricultural land drainage systems will be maintained including maintaining provision of water for livestock, as far as reasonably practicable.

2.5 Construction Programme and Activities

2.5.1 Construction Programme

- 2.5.1.1 Subject to being granted consent and following a final investment decision, the earliest anticipated start year for construction is 2029. The construction programme is assumed to be approximately 24 months. The final construction programme will be dependent on the grid connection date, final layout design and potential environmental constraints affecting the timings of construction activities.

2.5.2 Construction activities

- 2.5.2.1 The ES will provide further details of the proposed construction activities, their anticipated duration, along with an indicative programme of each phase of the works. The sections below provide an overview of these activities.
- 2.5.2.2 The types of construction activities that may be required include (but are not necessarily limited to):
- site preparation:

- import of construction materials, plant and equipment to Site;
- establishment of construction compound(s);
- upgrading of existing site tracks/ access roads and construction of new tracks; and
- upgrade or construction of crossing points (bridges/ culverts) over drainage ditches.
- Solar PV infrastructure construction to include:
 - import of components to Solar Development Site;
 - erection of module mounting structures;
 - mounting of modules;
 - installation of electric cabling;
 - installation of transformer cabins;
 - installation of battery storage units; and
 - construction of the On-Site Substation(s) compound(s).
- cable installation to include:
 - establishment of mobilisation areas and running tracks;
 - temporary construction compounds (to be located on or near cable routes, which are yet to be determined);
 - stripping of topsoil in sections;
 - trenching in sections;
 - appropriate storage and capping of soil;
 - appropriate construction drainage with pumping where necessary;
 - sectionalised approach of duct installation;
 - excavation and installation of jointing pits;
 - cable joint installation;
 - cable pulling;
 - implementation of crossing methodologies for watercourses, infrastructure (including roads and rail), and sensitive habitats (e.g. HDD, cable bridging, etc.);
- testing and commissioning; and
- site reinstatement, landscaping and habitat creation.

2.5.3 Construction Site Access

- 2.5.3.1 Site access optioneering is ongoing and will be subject to discussions with the relevant highway authorities. It is currently anticipated that a minimum of three points of vehicular access for the Solar Development Site will be required during the construction and decommissioning of the Proposed Development. Improvement works (such as widening of passing points) may be required subject to ongoing studies. Internal haul routes within the Solar Development Site will be used, as far as reasonably practicable, for movements to reduce disruption and transport effects.

2.5.4 Construction Staff and Hours of Work

- 2.5.4.1 Working hours during the construction phase would be 07.00-19.00 Monday to Friday, 09.00-14.00 Saturday with typically no activities on Sunday or Bank/ Public Holidays (noting there may be some out of hours work required for certain construction activities that cannot be stopped, or to manage the programme (e.g. delivery of abnormal indivisible loads (AIL), concrete pours for foundations, night-time working for cable

construction works in public highways or HDD activities).

- 2.5.4.2 It is currently anticipated there would be approximately 150 – 200 construction staff working on average with a peak of workers of 350 for limited peak periods.

2.5.5 Construction Traffic Management

- 2.5.5.1 It is anticipated that there will be a maximum of 60 HGV trips per day (120 two-way movements) during peak construction periods, distributed across the network and access points around the Site. It is anticipated that AIL would be required to enable construction of the On-Site Substation(s).
- 2.5.5.2 As far as reasonably practicable, construction deliveries will be coordinated to avoid HGV movements during the traditional AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00). Construction access and routing is subject to ongoing assessment; however, as noted in **Section 2.4: Environmental Design**, the Applicant will explore construction HGV route options with an aspiration to avoid sensitive receptors (e.g. local schools) where feasible including seeking to minimise construction HGV movements through Great Casterton.
- 2.5.5.3 A Construction Traffic Management Plan (CTMP) will be produced which will set out the traffic management measures to be implemented during construction. The CTMP would be submitted to and approved by the relevant local planning authority prior to commencement. An Outline CTMP (oCTMP) will accompany the Application.

2.5.6 Construction Environmental Management

- 2.5.6.1 An Outline Construction Environmental Management Plan (oCEMP) will accompany the Application, which will provide an outline of mitigation measures to be followed and to be carried forward to a detailed CEMP prior to construction.
- 2.5.6.2 The final CEMP(s) (there may be more than one depending on the ultimate procurement strategy for the Proposed Development) will be produced by the appointed construction contractor(s) following grant of the DCO and will be approved by the relevant local planning authority(s) prior to the start of construction (as part of the discharge of requirements of the DCO) and will identify the procedures to be adhered to and managed by the Principal Contractor throughout construction.
- 2.5.6.3 Contracts with companies involved in the construction works will incorporate environmental control, health and safety regulations, and current guidance with the aim of ensuring that construction activities are sustainable and that all contractors involved with the construction stage are committed to agreed best practice and complying with relevant environmental legislation.

2.5.7 Site Reinstatement and Habitat Creation

- 2.5.7.1 Following construction, a programme of site reinstatement and habitat creation will commence. An Outline Landscape and Ecological Management Plan (oLEMP) will be submitted as part of the Application, which will set out the principles for how land will be managed throughout the operational phase, following the completion of construction.

A final Landscape and Ecological Management Plan will be secured via the DCO and be subject to approval by the relevant local planning authority(s) prior to construction (to discharge the requirement of the DCO).

2.6 Operational Activities

- 2.6.1.1 During the operational phase, activity on the Solar Development Site will be restricted principally to vegetation management, equipment maintenance and servicing, replacement of any components as required, periodic fence inspection, and monitoring to ensure the continued effective operation of the Proposed Development. Replacement of some components will be required during the lifetime of the Proposed Development, either due to their service life or potential faults. The replacement of the solar infrastructure (including BESS) will be undertaken when needed and assumptions regarding replacement will be confirmed in the ES that accompanies the Application. For the purposes of scoping, it is assumed that the vehicle movements associated with replacement would be less than those for construction and would be able to be managed through measures in the Outline Operational Environment Management Plan (oOEMP).
- 2.6.1.2 Access to the Proposed Development in the operational phase is likely to use those access points created during construction, as discussed in **Section 2.5.3: Construction Site Access**. However, this will be confirmed as the Proposed Development design progresses and in consultation with the relevant authorities. It is anticipated that routine traffic movements during the operational phase will be minimal and infrequent.
- 2.6.1.3 There is expected to be minimal maintenance requirements for the Grid Connection Cables.

2.7 Decommissioning

- 2.7.1.1 The Proposed Development will be consented to operate for 60 years. When the operational phase ends, the Proposed Development will require decommissioning. It is currently anticipated that all PV modules, mounting poles, inverters and transformers would be removed from the Solar Development Site and recycled or disposed of in accordance with good practice and market conditions at that time; however, it is expected that below ground cabling would not be removed. Subject to the requirements as set out in the oLEMP, which will specify vegetation to be retained, the Solar Development Site will be returned to its original use as far as reasonably practicable after decommissioning. For the purposes of assessment in this EIA Scoping Report (and in the ES), it is assumed that vegetation planted for landscaping and ecological purposes would be left in-situ on handback of land to landowners following decommissioning (with the exception of grassland planted under the Panel Areas). A Decommissioning Environmental Management Plan (DEMP), to include timescales and transportation methods, would be agreed in advance with the relevant local planning authority, secured via requirement of the draft DCO. An Outline DEMP (oDEMP) would be prepared to accompany the Application.
- 2.7.1.2 Decommissioning is expected to take approximately 24 months and could be undertaken in phases. The effects of decommissioning are usually similar to, or of a lesser magnitude than, construction effects and will be considered in the relevant sections of the ES. The specific method of decommissioning the project at the end of its

operational life is uncertain at present as the engineering approaches to decommissioning will evolve over the operational life of the Proposed Development. Reasonable worst-case assumptions will therefore be made where appropriate and where uncertainty exists, this will be outlined.

3. Legislation, Policy Context and Alternatives

3.1 Introduction

- 3.1.1.1 The purpose of an EIA Scoping Report is not to assess the Proposed Development against policy, but rather the consideration of planning policy helps to inform identification of the sensitivity of receptors and required methodology for the assessments.
- 3.1.1.2 Regard will be had to primary legislation and energy policy, national planning policy and guidance, and relevant local policies to establish receptors, likely effects, and potential mitigation.
- 3.1.1.3 This section provides an overview of the legislation and policy context for the Proposed Development and the approach being undertaken in respect of consideration of alternatives as the design development for the Proposed Development progresses.

3.2 Legislation

3.2.1 The Planning Act 2008

- 3.2.1.1 The Planning Act 2008 (the PA 2008) provides the legislative framework for considering DCO applications for NSIP. Other relevant legislation considered pertinent to the Proposed Development includes the Climate Change Act 2008⁸, Equality Act 2010²³, and the Human Rights Act 1998²⁴.

3.2.2 Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

- 3.2.2.1 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 No. 572² (the EIA Regulations) set out the legislative requirements for undertaking an EIA for DCO applications.

3.3 PINS Advice

- 3.3.1.1 The Planning Inspectorate (PINS) has a suite of advice published on their website which is aimed at applicants and covers a number of aspects of the PA 2008 system. It has no statutory status but is drawn from good practice and PINS recommend that it is followed. It is intended to complement the legislation, regulations, and guidance issued by government. The most relevant guidance is summarised briefly below.
- 3.3.2 **Nationally Significant Infrastructure Projects - Advice Note Seven: Environmental Impact Assessment: process, preliminary environmental information and environmental statements (updated 25 March 2025)**
- 3.3.2.1 Advice Note Seven provides information on elements of the EIA process during the pre-application stage. It sets out the information to be included in a developer's screening and scoping requests made to PINS.

3.3.3 Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development (updated 27 March 2025)

- 3.3.3.1 This technical advice page provides guidance on the EIA process for solar NSIP developments. It contains examples of supporting information that can assist PINS when considering whether to agree to scope an aspect or matter in or out of a solar NSIP EIA, focusing on areas where significant effects are ‘unlikely to occur’ for a typical solar NSIP. The advice page also includes guidance on assessments for various technical assessments including glint and glare, electro-magnetic fields, and lighting.

3.4 Clean Power 2030

- 3.4.1.1 The government’s Clean Power 2030 Action Plan⁹ was published in December 2024 and sets out the pathway to a clean power system by 2030. Specifically, it sets out infrastructure deployment pathways and generation capacity ranges designed to help ensure clean sources produce at least 95% of the country’s energy by 2030, pushing Great Britain towards net zero 2050.
- 3.4.1.2 Within the Clean Power 2030 Action Plan, the government committed to updating the NPS for Energy in 2025 to reflect the needs of Clean Power 2030, improving policy certainty for developers and examining authorities.
- 3.4.1.3 Projects relevant for Clean Power 2030 can be deemed Critical National Priority (CNP) with a presumption in favour of consent.
- 3.4.1.4 With specific relevance to solar, the UK government published the DESNZ ‘Clean Power Capacity Range’ in the Clean Power 2030 Action Plan which included a range of possible installed capacities – for solar this was 45 – 47GW in 2030. Beyond this, it is noted that electricity storage has a key role to play.

3.5 Planning Policy Context

3.5.1 Energy National Policy Statements

- 3.5.1.1 In accordance with Section 104(2) of the PA 2008, the NPS are the primary policy basis for NSIP development and the SoS is directed in the PA 2008 to determine a DCO application in accordance with the relevant NPS. The NPS relevant to the Proposed Development are EN-1, EN-3, and EN-5; the content of which are outlined below in Table 3-1.

Table 3-1: Relevant NPS to the Proposed Development

National Policy	Summary
Overarching National Policy Statement for energy (EN-1) ¹⁵	NPS EN-1 is the primary policy document for NSIP in the energy sector. It outlines the government’s objectives, policies, and regulatory frameworks for energy infrastructure development. EN-1 is the main reference for decisions by the SoS, and energy projects should align with its principles and those in technology-specific NPS.
National Policy Statement for renewable energy infrastructure (EN-3) ¹⁶	NPS EN-3 is a technology-specific NPS, focusing on renewable energy generation projects. It is therefore to be considered alongside NPS EN-1 as the primary policy basis for decisions on renewable energy infrastructure DCO applications. Section 2.10 sets out policy specific to solar NSIP development, directing the approach to

National Policy	Summary
	assessment and consideration of impacts which are additional to those detailed in NPS EN-1.
National Policy Statement for electricity networks infrastructure (EN-5) ²⁵	NPS EN-5 is a technology-specific NPS, focusing on infrastructure for electricity networks, to include transmissions systems (above or underground) and associated infrastructure such as substations and converter stations. It is considered to be a relevant NPS for the Proposed Development due to the inclusion of electricity network infrastructure (underground cables and On-Site Substation(s)) which is associated development to the solar PV generation station, as per paragraph 1.6.4 of the NPS. NPS EN-5 sets out assessment principles specific to electricity network infrastructure, with a predominant focus on overhead lines, in addition to those detailed in NPS EN-1.

3.5.2 Revised Energy National Policy Statements (April 2025)

- 3.5.2.1 The Government published revised draft versions of EN-1²⁶, EN-3²⁷, and EN-5¹⁷ for consultation on 24 April 2025, closing on 29 May 2025. The revisions include a number of material updates which have been proposed to ensure, primarily, that the narrative within NPS reflects the Government’s current energy priorities as set out in Clean Power 2030.
- 3.5.2.2 With regards to EN-3 (Renewable Energy Infrastructure), the chapter on Solar Photovoltaic Generation has been revised to increase emphasis on the potential and importance of solar power in the UK. The draft EN-3 describes solar energy as being ‘at the heart of’ the Clean Power 2030 mission, and states that the government is committed to radically increase solar capacity by 2030.

3.5.3 National Planning Policy Framework

- 3.5.3.1 The National Planning Policy Framework (NPPF)²⁸ sets out the Government’s planning policies for England and how these are expected to be applied. Paragraph 5 of the NPPF states that:
“The NPPF does not contain specific policies relating to NSIP. These are determined in accordance with the decision-making framework in the PA 2008 and relevant NPS for major infrastructure, as well as any other matters that are relevant (which may include the NPPF)”.
- 3.5.3.2 Chapter 2 of the NPPF states the purpose of the planning system is to contribute to the achievement of sustainable development. It also details how the planning system should provide ways for the UK to meet the challenge of climate change and transition to a low carbon future.

3.5.4 National Planning Policy Guidance (NPPG)

- 3.5.4.1 The NPPF should be read alongside the online NPPG, which aims to make planning guidance more accessible and up-to-date. The NPPG, which was published on 18 June 2015 and last updated on 14 August 2023 contains specific guidance on renewable and low carbon energy, and states:
“Increasing the amount of energy from renewable and low carbon technologies will help to make sure the UK has a secure energy supply, reduce greenhouse gas emissions to

slow down climate change and stimulate investment in new jobs and businesses. Planning has an important role in the delivery of new renewable and low carbon energy infrastructure in locations where the local environmental impact is acceptable.”

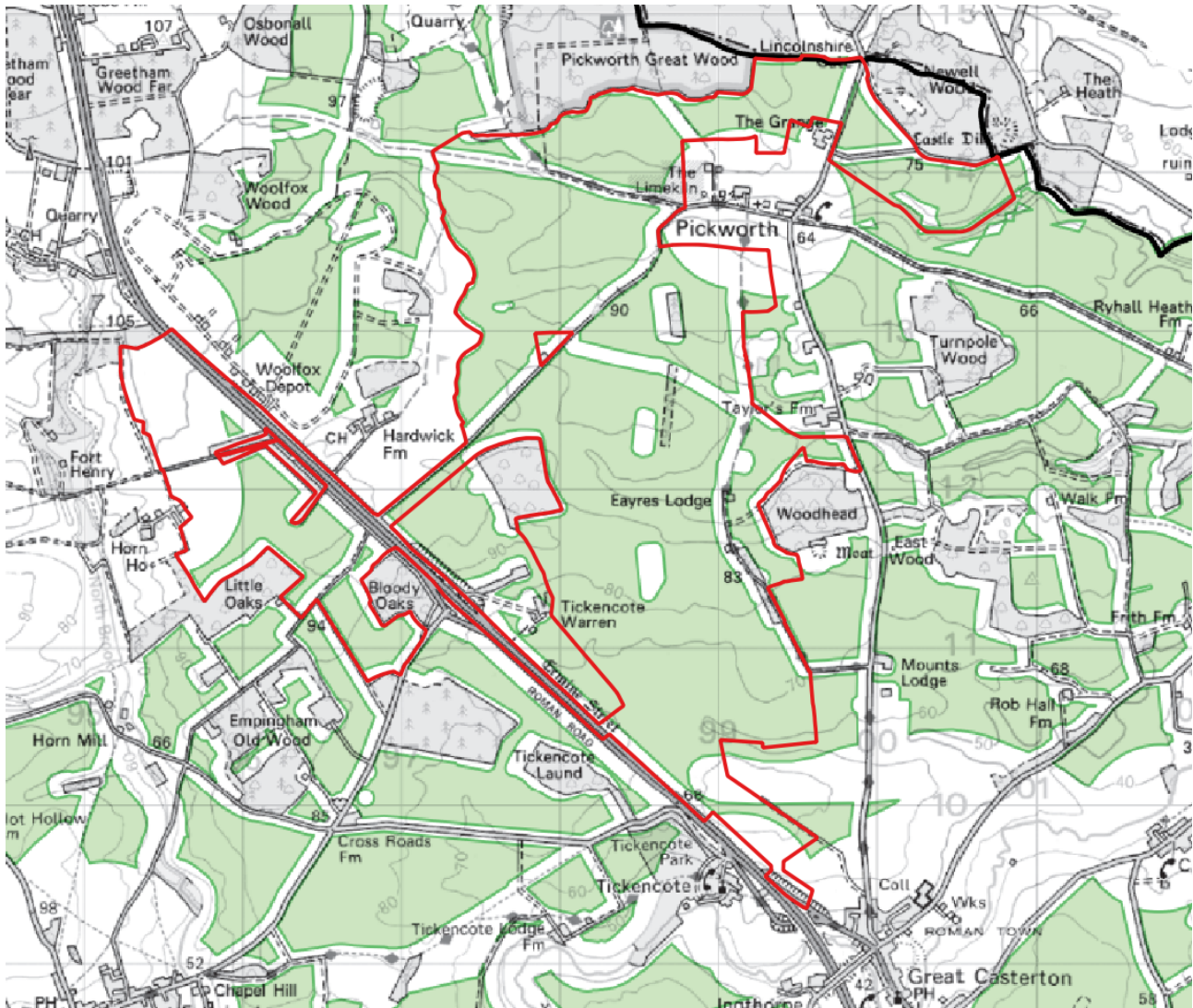
3.5.5 Local Policy

- 3.5.5.1 The Proposed Development is located across three local authority areas; the Solar Development Site is wholly located within RCC (a unitary authority) and the Grid Cable Route Search Area land extends into SKDC and therefore LCC as a two-tier authority area. This is shown in **Figure 1.3: Local Authority Planning Boundaries**.
- 3.5.5.2 The following sections provide a summary of the development plan for these three authority areas.

Rutland County Council

- 3.5.5.3 RCC’s adopted local plan (2018) sets out the strategic and development management policies that will guide development up to 2036²⁹ and is made up of the following three development plan documents (DPD):
- Core Strategy DPD;
 - Site Allocations and Policies DPD³⁰; and
 - Minerals Core Strategy and Development Control Policies DPD³¹.
- 3.5.5.4 At the time of writing, RCC has an emerging new Local Plan³² which is at examination stage, having been submitted to the Planning Inspectorate on 28 February 2025. Given the advanced stage of the emerging plan, the policies within it are now a material consideration for the consideration of planning applications. In the context of a DCO application, the local planning authority will take these policies into account for their Local Impact Report (LIR). It is likely that this emerging plan will be adopted policy by the time of the DCO application submission.
- 3.5.5.5 In terms of key emerging policies, the submitted Policies Map (October 2024) identifies ‘Opportunity Areas for Renewable Energy - Ground Mounted Solar PV’ (Policy CC8). Policy CC8 of the emerging Rutland Local Plan affirms RCC’s commitment to supporting the transition to net zero, seeking to maximise appropriately located renewable energy generation infrastructure. The Policy goes on to state that proposals for ground based solar PV and associated infrastructure including commercial large-scale proposals are more likely to be supported where they are within an area identified on the Policies Map. The proposed designation on the Policies Map covers a large portion of the Solar Development Site as identified in Plate 3-1 below.

Plate 3-1: Opportunity Areas for Renewable Energy - Ground Mounted Solar PV (Policy CC8)



3.5.5.6 In addition, the Solar Development Site borders a designation known as ‘Woolfox Opportunity Area’ to the north-west. The emerging Local Plan is clear that this site is not ‘allocated’ due to it compromising the delivery of the proposed spatial strategy, but rather identified as a future opportunity area that may contribute to future housing and economic development needs which have increased as a result of reforms to national policy and other changes to the planning system.

3.5.5.7 Other emerging policies that are considered pertinent to the Proposed Development comprise:

- Policy CC8 – Renewable Energy;
- Policy CC9 – Protecting Renewable Energy Infrastructure;
- Policy CC10 – Wider Energy Infrastructure;
- Policy CC14 – Flood Risk
- SC1 – Landscape Character;
- EN1 – Protection of Sites, Habitats and Species;
- EN2 – Local Nature Recovery Strategy;
- EN3 – Biodiversity Net Gain;
- EN4 – Trees, Woodland and Hedgerows;
- EN5 – Ancient Woodland and Ancient and Veteran Trees;

- EN6 – Protecting Agricultural Land;
- EN7 – Green and Blue Infrastructure;
- EN12 – The Historic and Cultural Environment;
- EN13 – Protecting Heritage Assets;
- MIN3 – Safeguarding Rutland’s Mineral Resources; and
- MIN6 – Safeguarding of Minerals Development.

Lincolnshire County Council

- 3.5.5.8 LCC is responsible for planning matters in relation to waste management, minerals extraction and related development, as well as the Council’s own developments such as schools, libraries, etc. The development plan for LCC is made up of the following development plan documents:
- Lincolnshire Minerals and Waste Local Plan - Core Strategy and Development Management Policies³³ (2016); and
 - Lincolnshire Minerals and Waste Local Plan - Site Locations³⁴ (2017).
 - There are no allocated mineral or waste sites within, or in close proximity to, the Solar Development Site or Grid Cable Route Search Area land.
- 3.5.5.9 Relevant policies within LCC’s local plan comprise:
- Policy M11: Safeguarding of Mineral resources which aims to maintain long-term access to mineral resources and requires applicants of non-mineral developments in mineral safeguarding areas to submit a Minerals Assessment;
 - Policy W8 which seeks to safeguard existing and allocated waste management facilities from redevelopment to a non-waste use and/ or the encroachment of incompatible development; and
 - MCS Policy 10: Minerals Safeguarding which sets out that all deposits of limestone and clay that are considered to be of current or future economic importance and significant infrastructure such as rail linked facilities will be safeguarded from unnecessary sterilisation by surface development.

South Kesteven District Council

- 3.5.5.10 SKDC’s development plan comprises the South Kesteven Local Plan (2020)³⁵ which sets out the planning policies for South Kesteven up until 2036. Key policies relevant to the Proposed Development are:
- SD1: The principles of sustainable development in South Kesteven;
 - EN1: Landscape Character;
 - EN2: Protecting Biodiversity and Geodiversity;
 - EN3 – Green Infrastructure;
 - EN5 – Water Environment and Flood Risk Management;
 - EN6: The Historic Environment; and
 - RE1: Renewable Energy Generation.

3.5.6 Neighbourhood Plans & Designated Neighbourhood Plan Areas

- 3.5.6.1 The Localism Act 2011¹⁵ introduced statutory neighbourhood plans, empowering local communities to create their own planning policies for their areas, which must be taken into account by local authorities when making planning decisions.

- 3.5.6.2 The Solar Development Site and associated Grid Cable Route Search Area interact with the following two designated neighbourhood plan areas and one made neighbourhood plan:
- the Castle Bytham Designated Neighbourhood Plan Area³⁶ overlaps the northern-most Grid Cable Route Search Area;
 - the Greetham Neighbourhood Plan (2016-2036) area immediately adjoins the Solar Development Site (towards the north-west); and
 - similarly, the Stamford Neighbourhood Plan 2016-2036³⁷ area adjoins the southern Grid Cable Route Search Area.

3.6 Legislative and Policy Context for Alternatives

3.6.1 Legislative Context

- 3.6.1.1 The consideration of alternatives is undertaken within the context of legislative requirements and the national policy context for nationally significant energy projects.
- 3.6.1.2 In relation to the carrying out of an environmental impact assessment, regulation 14(2)(d) of the EIA Regulations states that the ES must include:
“A description of the reasonable alternatives studied by the applicant, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment.”
- 3.6.1.3 Paragraph 2 of Schedule 4 to the EIA Regulations further states that the following information must be included in the ES:
“A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects”.

3.6.2 Planning Policy Context

- 3.6.2.1 The NPS EN-1⁵ (and draft NPS-EN-1) states at paragraph 4.3.9:
“As in any planning case, the relevance or otherwise to the decision making process of the existence (or alleged existence) of alternatives to the proposed development is, in the first instance, a matter of law. This NPS does not contain any general requirement to consider alternatives or to establish whether the proposed project represents the best option from a policy perspective. Although there are specific requirements in relation to compulsory acquisition and habitats sites, the NPS does not change requirements in relation to compulsory acquisition and habitats sites.”
- 3.6.2.2 It confirms that there is no general requirement within the NPS to consider alternatives, or to establish that the Proposed Development represents the best option.
- 3.6.2.3 NPS EN-1 goes on to state at paragraphs 4.3.22 to 4.3.25:
“Given the level and urgency of need for new energy infrastructure, the Secretary of State should, subject to any relevant legal requirements (e.g. under the Habitats

Regulations) which indicate otherwise, be guided by the following principles when deciding what weight should be given to alternatives:

- the consideration of alternatives in order to comply with policy requirements should be carried out in a proportionate manner; and
- only alternatives that can meet the objectives of the proposed development need to be considered.

The Secretary of State should not refuse an application for development on one site simply because fewer adverse impacts would result from developing similar infrastructure on another suitable site, and should have regard as appropriate to the possibility that all suitable sites for energy infrastructure of the type proposed may be needed for future proposals.

Alternatives not among the main alternatives studied by the applicant (as reflected in the ES) should only be considered to the extent that the Secretary of State thinks they are both important and relevant to the decision.”

3.6.2.4 Draft NPS EN-1 also states at paragraph 4.3.23:

“The Secretary of State should be guided in considering alternative proposals by whether there is a realistic prospect of the alternative delivering the same infrastructure capacity (including energy security, climate change, and other environmental benefits) in the same timescale as the proposed development.”

3.6.3 Relevant Guidance

3.6.3.1 On 7 March 2025, ‘Guidance for Applicants preparing Applications for Linear Projects’³⁸ was published by the Department for Levelling Up, Housing and Communities (DLUHC) which advised that applicants should follow the recommendations and considerations set out in the ‘Nationally Significant Infrastructure Projects: Advice on Good Design’³⁹. While the guidance is not specifically aimed at solar projects, it includes reference to solar cable corridors and is therefore considered relevant to the Proposed Development in relation to the Grid Cable Route Search Area and advises that the narrative on alternatives to be presented by an applicant covers the construction stage as well as operation stage because of the potential to affect various communities and habitats along the route. Further consideration of these matters will be presented in the ES.

3.7 Approach to Alternatives

3.7.1.1 This section has been prepared in compliance with the requirements of the EIA Regulations to provide a description of the reasonable alternatives studied by the Applicant at this EIA scoping stage of the design development process, as well as the proposed approach for the assessment of alternatives as part of the ES. This approach is also in accordance with NPS EN-1.

3.7.2 Site Selection

3.7.2.1 There is no standard methodology for the consideration of site selection for solar energy developments. Therefore, the approach undertaken has been informed by policy and guidance, starting with the NPS EN-3 (Section 2.10) which sets out a series of criteria and considerations to inform site selection and design of solar development.

- 3.7.2.2 The location of the Solar Development Site was established through a staged process to ensure that a site close to the point of connection could be identified which would be suitable for solar energy generation and feasible to deliver, whilst avoiding or minimising the potential for harm to the environment and communities.
- 3.7.2.3 The Solar Development Site selection process was progressed in accordance with the factors influencing site selection and design, as set out in section 2.10 of NPS EN-3. The key stages were:
- **Stage 1 – defining the initial search area.** As identified in paragraphs 2.10.19 and 2.10.20 of NPS EN-3 irradiance and flat topography are a key factors to influence energy generation. This area in Rutland has both. Proximity to an available grid connection with capacity is also a key consideration which for the purposes of site selection. In accordance with Clean Power 2030, capacity is available at transmission level within this region and a point of connection to a new substation has been confirmed by National Grid as part of the Applicant’s connection agreement. At the time of the site selection however, the exact location of the new substation was not yet known, nor was there any feedback from NGET/NESO regarding the feasibility of an extension of the existing Ryhall substation. National Grid have indicated a broad location based on existing infrastructure, indicating it would be in the region of the existing Ryhall 400kV substation. Therefore, for the purposes of site selection, the existing substation at Ryhall was chosen as a likely mid-point for a new substation search area. The closer a solar farm is to the POC the more efficient the transmission of electricity generated. Therefore, a radius of 10km was used from the POC at Ryhall substation to define the initial search area.
 - **Stage 2 – refining the initial search area.** This was done through the application of environmental and land use constraints, establishing land which is unconstrained and therefore potentially suitable for solar development. Reference was made to all publicly available desktop data sources to inform and apply key constraints including (but not limited to) ecology and landscape designations, proximity to residential dwellings, flood risk, agricultural land classification, and heritage assets.
 - **Stage 3 – application of inclusive criteria.** This took into account accessibility in line with paragraph 3.10.21 of the NPS EN-3 to ensure the minimization of potential construction traffic impacts, as well as availability and size of land parcels and the creation of a contiguous site to minimize the spread of environmental effects. Reference was also made to the areas identified in the Rutland Local Plan as suitable for solar.

3.7.3 EIA Scoping Stage

- 3.7.3.1 At this scoping stage, the Site contains several wide options for the cabling to a number of different grid connection points being considered. The Grid Cable Route Search Area will be refined to identify cable corridors in response to environmental and technical factors as identified as part of the EIA process, as well as discussions with landowners and as a result of consultation feedback received from key stakeholders and the wider community within which electrical underground cable connections would be located. It is possible that in doing so, further alternative routes will be identified that are outside the areas identified at this EIA Scoping stage. Given that the development consists of underground cables that would be routed to avoid sensitive locations as far as reasonably practicable, and would be in a similar geographic area, it is not considered likely that

locating the cable in a different location would alter the scope of assessment as set out in this EIA Scoping Report.

- 3.7.3.2 Further detail on how the grid connection solution is brought forward, the alternatives considered and the rationale for the final selected approach will be provided in the ES.

3.7.4 Approach to Consideration of Alternatives in the ES

- 3.7.4.1 Regulation 14(2)(d) of the EIA Regulations outlines the approach that an ES must take to consideration of alternatives. The ES will therefore describe the reasonable alternatives that the Applicant has considered in developing the design of the Proposed Development. It will explain the main reasons for the options selected and how the effects of the Proposed Development on the environment and sensitive receptors were considered as part of the options selection process.
- 3.7.4.2 The analysis of alternatives will focus on the following aspects of option selection:
- site selection;
 - alternative site layouts;
 - underground cable route alternatives;
 - On-Site Substation(s) siting alternatives;
 - consideration of energy storage facilities and other supporting infrastructure;
 - alternative technologies; and
 - alternative environmental design.
- 3.7.4.3 Further refinement will be undertaken as the Proposed Development design progresses to determine the final Site and layout for the Proposed Development that will be submitted with the Application.
- 3.7.4.4 A ‘no development’ alternative would not provide the additional renewable electricity generation that would be delivered by the Proposed Development, a key principle for consideration of alternatives as set out in NPS EN-1 and has therefore not been considered further and will not be considered in the ES. The consequence of a ‘no development’ scenario, i.e. not to develop the type of project in principle, is that the need for renewable energy, to provide the UK with energy security, and to achieve net zero by 2050, will not be met without the Proposed Development and others like it. National policy (NPS EN-1 and EN-3) supports renewable energy developments and low carbon infrastructure as CNP as the need for them is urgent. A do-nothing strategy would materially undermine the Government’s strategy and ability to meet its legally binding obligations and to deliver the target 70GW of solar by 2035. The CNP status of the Proposed Development reinforces the pressing need to deliver such projects at pace.
- 3.7.4.5 The consideration of alternatives will continue throughout the EIA process as the design evolves with the aim to reduce and avoid any likely significant environmental effects, in line with legislative and policy requirements, whilst maintaining operational efficiency. In providing a description of reasonable alternatives studied by the Applicant, the ES will demonstrate the rationale for the preferred design of the Proposed Development, considering its effects on the environment and sensitive receptors.

4. Consultation

4.1 Context

- 4.1.1.1 Effective and meaningful engagement and consultation with stakeholders is an essential aspect of developing the design of the Proposed Development and of undertaking a comprehensive and balanced EIA.
- 4.1.1.2 As advised by the DLUHC guidance on pre-application consultation for major infrastructure projects,⁴⁰ the Applicant's approach to engagement and consultation will be iterative to enable stakeholders to gain understanding of the proposals early on in the process and to have genuine opportunities for influence.
- 4.1.1.3 The Applicant will have regard to the guidance provided in PINS Advice Note: Advice on EIA Notification and Consultation⁴¹ in taking a precautionary approach to identifying relevant consultees for the Proposed Development and demonstrating compliance with the requirements of the EIA Regulations, the PA 2008 and the APFP Regulations.
- 4.1.1.4 The Applicant will also aim to ensure that reporting on engagement and consultation activities is carried out in accordance with relevant guidance including PINS Advice Note: Advice on the Consultation Report⁴² and PINS NSIP 2024 Pre-application Prospectus⁴³ with the submission of a Consultation Report as part of the Application which evidences how consultation has been carried out and how feedback has been considered in developing the proposals.
- 4.1.1.5 The Applicant notes the publication of the Ministerial Statement relating to proposed reforms to the NSIP regime⁴⁴ include the potential removal of the statutory requirement for pre-submission consultation that are to be considered under the Planning and Infrastructure Bill⁴⁵ and the proposed statutory guidance '*setting out strong expectations that developers undertake consultation and engagement prior to submitting an application*'. The Applicant will monitor and seek to comply with relevant emerging statutory guidance and changes to legislation where this is developed by Government during the pre-application stage.
- 4.1.1.6 The Applicant's approach to stakeholder engagement for the Proposed Development will seek to achieve the following aims:
- engaging early to allow stakeholders and the public to shape the Proposed Development's design at a formative stage;
 - committing to understanding local issues that are important for communities;
 - ensuring that community involvement is central to the Proposed Development's ongoing design; and
 - creating a development project that benefits the local area for the next 60 years (as the Proposed Development will be consented to operate for 60 years).
- 4.1.1.7 Engagement with statutory and non-statutory consultees will be undertaken throughout the EIA process to gather feedback on the emerging project proposals. Engagement with statutory consultees will focus on agreeing approach to baseline survey and assessment methodologies for each assessment topic throughout pre-Application period. It is intended that non-statutory consultation and engagement activities will be undertaken to

inform the design of the Proposed Development and its environmental assessment (through workshops and community engagement) ahead of commencing pre-application statutory consultation as required under the PA 2008 and the EIA Regulations and engagement will continue post statutory consultation to inform the Application.

- 4.1.1.8 Compliance with the requirements of the PA 2008 and the EIA Regulations will be evidenced in the Consultation Report and ES submitted with the Application, in addition to details of the non-statutory engagement undertaken throughout the design and assessment of the Proposed Development.

4.2 Consultation to Date

- 4.2.1.1 A number of meetings with statutory consultees have already taken place to introduce the proposals, including:
- Environment Agency;
 - Historic England;
 - National Highways;
 - RCC; and
 - The Planning Inspectorate.
- 4.2.1.2 The Applicant has also been in regular discussions with local landowners affected by the Proposed Development.
- 4.2.1.3 The Applicant has launched a website for the Proposed Development prior to the submission of this EIA Scoping Report, which provides information to the wider community on the Proposed Development, its anticipated programme and the opportunity to contact the Applicant with any queries or for further information.

4.3 Scoping Consultation

- 4.3.1.1 Under Regulation 10(6) of the EIA Regulations, this EIA Scoping Report will be issued by PINS (on behalf of the SoS) to statutory consultees, for comment on the scope, methodology and approach proposed for the EIA. Comments received will be compiled and presented within the EIA Scoping Opinion, which is to be issued by PINS to the Applicant.
- 4.3.1.2 Following receipt of the Scoping Opinion and associated consultee responses, engagement will be undertaken by the Applicant with stakeholders to inform further EIA work to be undertaken and to seek to reach agreement on relevant matters. A summary of these discussions will be presented in the ES.

5. Environmental Impact Assessment Methodology

5.1 Introduction

- 5.1.1.1 The EIA process, as outlined in Regulation 5 of the EIA Regulations and PINS Advice Note Seven, is used to identify the likely significant effects on the environment that could occur as a result of a proposed development. The information gathered through EIA is reported in an ES for consideration by the determining authority (in this case, the SoS) alongside other Application documents when determining an application for consent.
- 5.1.1.2 This section of the EIA Scoping Report outlines the general approach to EIA for the Proposed Development.

5.2 EIA Guidance

- 5.2.1.1 The EIA will be carried out in accordance with the requirements of the EIA Regulations². In addition, the approach to the EIA will have regard to the guidance and advice provided within the following:
- Overarching NPS for Energy (NPS EN-1);
 - Draft NPS for Energy (Draft EN-1) (2025);
 - NPS for Renewable Energy Infrastructure (NPS EN-3);
 - Draft NPS for Renewable Energy Infrastructure (Draft EN-3) (2025);
 - NPS for Electricity Networks Infrastructure (NPS EN-5);
 - Draft NPS for Electricity Networks Infrastructure (Draft EN-5) (2025);
 - The NPPF;
 - Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development;
 - Planning Act 2008: Pre-Application Stage for Nationally Significant Infrastructure Projects;
 - Nationally Significant Infrastructure Projects: Advice on EIA Notification and Consultation;
 - Nationally Significant Infrastructure Projects: Advice on the Preparation and Submission of Application Documents⁴⁶;
 - PINS Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements;
 - PINS Advice Note Nine: Rochdale Envelope⁴⁷;
 - Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment⁴⁸;
 - Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive⁴⁹;
 - Nationally Significant Infrastructure Projects: Commitments Register⁵⁰; and
 - Topic specific guidance as set out in the relevant section of this EIA scoping report.

5.2.2 Rochdale Envelope Approach

- 5.2.2.1 The design of the Proposed Development will continue to evolve throughout the EIA

process through the ongoing use of an iterative design process. The iterative design process will consider comments made during the non-statutory consultation stage, in response to the EIA Scoping Report, outputs from field surveys, ongoing stakeholder engagement and comments on the ES that is provided in the Application. The ES will explain how the design of the Proposed Development has been influenced by the iterative design process.

- 5.2.2.2 Typically developers of renewable energy projects need to maximise flexibility in their consents, particularly with the long lead in times to consent and the subsequent engagement of engineering, procurement and construction contractors. Technology in solar PV is developing at a fast pace and therefore the technology which is available at the time of preparing the Application will likely have moved on significantly by the time the Proposed Development is in construction. It is typical for infrastructure projects to retain a level of flexibility and ability to finalise detailed design post-consent within a set of LoD or parameters.
- 5.2.2.3 In order to maintain flexibility in the design, it is the intention of the Applicant to use the Rochdale Envelope and implement the advice within Planning Inspectorate Advice Note Nine: Using the ‘Rochdale Envelope’⁴⁷. The Advice Note gives guidance on the degree of flexibility which could be considered appropriate under the PA 2008.
- 5.2.2.4 The Advice Note also acknowledges that there may be aspects of the design that are not yet fixed, resulting in the need for the EIA to assess likely worst-case variations to ensure that all foreseeable significant environmental effects of the Proposed Development are assessed.
- 5.2.2.5 NPS EN-1 additionally sets out in paragraph 4.3.12 that the Rochdale Envelope approach should be utilised where details are still to be finalised and seek to utilise worst-case parameters for assessment. This is of particular importance due to the evolving technology and speed of development within solar PV module and energy storage markets and for this reason, use of the Rochdale Envelope will be used to provide flexibility to allow future selection of technology at the time of construction, considering likely technology advances.
- 5.2.2.6 It is necessary for the EIA to assess an envelope within which the works would take place; however, to remain in accordance with the EIA Regulations the parameters need to be defined to ensure that likely significant effects are identified, rather than unrealistically amplified effects which could be deemed to be unlikely. As such, the Application and the EIA will be based upon maximum and, if relevant, minimum parameters or LoD (including in relation to any remaining optionality). These parameters will be considered in detail by technical authors in the ES to ensure the realistic worst-case effects of the Proposed Development are assessed for each potential receptor, including accounting for where different topics may have a different ‘worst-case’ where there is optionality.
- 5.2.2.7 Flexibility sought in relation to PV modules is likely to include (but not be limited at this EIA Scoping stage to):
- specifying areas and LoD within which panels would be sited;
 - panel alignment;
 - angle;

- orientation;
- separation distance;
- height and depth; and
- panel colour.

5.2.2.8 Flexibility sought in relation to inverters, BESS and associated infrastructure is likely to include (but not be limited at this EIA Scoping stage to):

- setting maximum (and where relevant minimum) dimensions for a range of on-site infrastructure;
- specifying areas and LoD within which infrastructure would be sited including the BESS and On-Site Substation(s) and maximum footprints; and
- setting horizontal (and where required, vertical) LoD for cable corridors.

5.2.2.9 The Applicant notes that NGET is responsible for the siting process for their National Grid Substation into which the Proposed Development will connect, and final location of the substation will be dependent on many technical, design and environmental factors that are not within the Applicant's control. The Applicant will therefore need to maintain a necessary degree of flexibility in the Grid Cable Route Search Area as the Application progresses and continue to engage with NGET on the approach to and progress of their siting assessments.

5.2.2.10 Design parameters will be set to define a worst-case scenario for any element of the design which is not fixed at the time of assessment in the ES. Each environmental topic will consider the design and what is likely to be the worst-case scenario to assess the potential for likely significant effects and to identify, where relevant, suitable mitigation measures.

5.3 Overview of Approach to Assessment

5.3.1.1 This section of the EIA Scoping Report sets out further detail on the assessment methodology that will be adopted in the ES. The following general methodology will apply to all assessments undertaken unless otherwise specified within the individual topic methodologies.

5.3.2 Establishing the Baseline Conditions and Data Collection

5.3.2.1 An important step in the EIA process is to establish a baseline against which to assess the effects of the Proposed Development. The ES will include a description of the current baseline and the future baseline for each environmental topic. The future baseline scenario will describe the changes from the current baseline scenario without implementation of the Proposed Development as far as natural changes (or climate change considerations where appropriate) can be established, although it is noted without the Proposed Development that the Site could continue to be used for agricultural purposes. Information relating to the existing environmental baseline will be collected through field and desk-top study, including:

- online/ digital resources;
- data searches, e.g., Local Biological Record Centres, Historic Environment Record (HER), etc.;
- baseline field surveys; and

- available environmental information submitted in support of other planning applications for development in the vicinity.

5.3.2.2 For each environmental topic section, the methods of baseline data collection will be discussed with the relevant consultees, as appropriate.

5.3.3 Defining the Spatial study area and Assessment Scenarios

5.3.3.1 Spatially, the area over which effects could occur may be wider than the boundary of the Site. The appropriate study area will be determined for each environmental topic individually. Specific study areas will be defined in each topic section and will allow for assessment of indirect as well as direct effects, together with off-site factors such as traffic routes, where relevant.

5.3.3.2 Specific temporal periods will be defined for the assessment of baseline conditions and the impacts of the Proposed Development. In doing so, consideration will be given to the likely durations of construction, operational and decommissioning activities. Where relevant, consideration will be given to the duration for environmental design measures to become established and effective. Timeframes for which mitigation measures are likely to have achieved their desired outcome will be defined within the ES.

5.3.3.3 The assessment will consider effects at the construction, operation and decommissioning phases. The definitions of these are presented below and in Table 5-1:

- construction phase: this relates to all works associated with construction (site preparation and installation);
- operational phase: this relates to effects once the Proposed Development is installed and in use, including ongoing maintenance requirements and equipment upgrades; and
- decommissioning phase: this relates to effects after operation has ceased.

5.3.3.4 The potential effects arising as a result of the Proposed Development will be assessed against the baseline and assessment year scenarios as shown in Table 5-1.

Table 5-1: Assessment Scenarios

Assessment scenarios	Description
Current baseline	The current baseline environment (2025-2026) for all relevant topics will be described in accordance with published sources and field surveys/ data collection undertaken as part of this EIA.
Future baseline	Anticipated changes to the environment will be described, using forecasting methods (e.g. anticipated natural succession of habitats and considering the effects of climate change) and considering that the future baseline can also change as a result of other developments being constructed ³ within the study areas or zones of influence (ZoI) to be used in the assessment for the Proposed Development.

³ PINS Advice Note on Cumulative Effects Assessment notes that “Where other existing and, or approved developments are expected to be completed before construction of the proposed NSIP and the effects are fully determined, effects arising from them should be considered as part of the baseline and may be considered as part of both the construction and operational assessment.”

Assessment scenarios	Description
Construction phase	The indicative construction programme is outlined in Section 2.5.1 ; construction of the Proposed Development (subject to the necessary consent being granted and an investment decision being made) may commence at the earliest in 2029 and last approximately two years i.e. to circa 2031.
Operation phase	The operation phase is expected to commence in 2031. On this basis, topics will select a future operational year scenario, if relevant, after the opening year when mitigation measures are likely to have achieved their desired outcome (e.g. 15 years following landscape planting) for landscape and visual amenity. The Proposed Development will be consented to operate for 60 years.
Decommissioning phase	The decommissioning following the operation of the Proposed Development. Decommissioning is expected to take approximately 24 months.

5.3.4 Identification of Receptors

- 5.3.4.1 Receptors are defined as the physical resource or ‘user group’ that would experience an effect. The environmental effect would depend on the spatial relationship between the source of the effect and the receptor. Some receptors will be more sensitive to certain environmental effects than others. The baseline studies will identify the potential environmental receptors.

5.4 Assessment of Impacts and Effects

5.4.1 Impact and Effect Prediction

- 5.4.1.1 Some environmental topic assessments will use calculations and modelling to determine the predicted impacts of the Proposed Development on receptors in order to assess the likely significance of effects. Others will be based on the expert judgement of the assessment team and initial assessments, considering relevant technical advice and guidance. Each environmental topic assessment will present a clear justification for the strategy adopted and state all relevant assumptions to facilitate independent review.

5.4.2 Assessment of Likely Significant Effects and Mitigation

- 5.4.2.1 The EIA will identify the likely significance of environmental effects (beneficial or adverse) arising from three phases (construction, operation and decommissioning) of the Proposed Development in addition to cumulative and in-combination effects. The likely significance of effects will be determined by reference to the criteria set out for each environmental topic.
- 5.4.2.2 Each environmental topic will also set out the relevant embedded mitigation measures (i.e. those that form part of the engineering design and industry standard practice approaches through management plans). The first stage of assessment is undertaken with embedded mitigation in place. Following this, where there are likely significant adverse effects, any additional mitigation measures will be identified. Additional mitigation are

additional project specific measures identified during the EIA to avoid, reduce or offset potential impacts that could otherwise result in effects likely to be considered significant in the context of the EIA Regulations. Additional mitigation will be identified by environmental topic specialists, where required, taking into account the embedded mitigation and good practice commitments.

- 5.4.2.3 Residual effects are the effects that remain following the implementation of additional mitigation measures. The likely residual effects of the Proposed Development will be set out for each topic assuming implementation of all mitigation measures identified. A commitments register will accompany the Application to demonstrate how these measures are secured.
- 5.4.2.4 The approach to assessing and assigning significance to an environmental effect is derived from a variety of sources including:
- legislative requirements, including the EIA Regulations;
 - national policy, including Overarching NPS for Energy (NPS EN-1), NPS for Renewable Energy Infrastructure (NPS EN-3); NPS for Electricity Networks Infrastructure (NPS EN-5) and the NPPF;
 - local planning policy and relevant planning practice guidance;
 - topic specific guidelines, standards and codes of practice;
 - advice from statutory consultees and other stakeholders; and
 - professional judgement of the EIA team.
- 5.4.2.5 The likely effects that the Proposed Development may have on identified environmental receptors will be influenced by a combination of the sensitivity or value of the receptor and the predicted magnitude of impact from the baseline conditions. Assignment of environmental sensitivity of a receptor will generally depend on the vulnerability, recoverability and value of the receptor. The environmental sensitivity (or importance) will be determined using the categories set out in Table 5-2, or as stipulated in individual topic sections.

Table 5-2: Indicative environmental sensitivity of a receptor

Sensitivity	Criteria
High	High importance and rarity, international level and very limited potential for substitution
Medium	High or medium importance and rarity, regional level and limited potential for substitution
Low	Low or medium importance and rarity; and local level
Negligible	Very low importance or rarity and local level

- 5.4.2.6 Where other categories of sensitivity have been used, this will be set out in the individual environmental topic assessment.
- 5.4.2.7 The categorisation of the magnitude of impact will consider the following factors, or as stipulated in individual topic sections:
- scale of alteration/ change;
 - geographical extent;

- duration and reversibility (for example: temporary, short-term and reversible; or temporary long-term and reversible; or permanent and irreversible); and
- frequency.

5.4.2.8 The magnitude of impact will be assigned using the categories outlined in Table 5-3, or as stipulated in individual topic sections. Further details of the topic-specific methodologies adopted for the EIA will be defined within the methodology section of each of the topic sections.

Table 5-3: Indicative magnitude of impact

Sensitivity	Criteria
High	Total loss or major alteration to key elements/ features of the baseline (i.e. pre-development) conditions
Medium	Partial loss or alteration to one of more key elements/ features of the baseline (i.e. pre-development) conditions
Low	Minor shift away from baseline (i.e. pre-development) conditions
Negligible	Very slight change from the baseline (i.e. pre-development) conditions

5.4.2.9 In order to provide a consistent approach to expressing the outcomes of the various technical assessments undertaken as part of the ES, and thereby enable comparison between likely significant effects upon different environmental topics, the following terminology will be used:

- adverse - detrimental or negative effect to an environmental resource or receptor; or
- beneficial – advantageous or positive effect to an environmental resource or receptor; and
- negligible – imperceptible effect to an environmental resource or receptor; or
- minor – slight, very short or highly localised effect of no significant consequence; or
- moderate – more than a slight, very short or localised effect (by extent, duration or magnitude) which may be considered significant; or
- major – considerable effect (by extent, duration or magnitude) of more than local significance or in breach of recognised acceptability.

5.4.2.10 The level of an environmental effect will be assigned by the interaction of both sensitivity of the receptor and magnitude of impact. Classification of likely significant environmental effects will generally follow the matrix outlined in Table 5-4 but will be confirmed in each technical assessment which will consider relevant topic-specific legislation, planning policy and guidance.

Table 5-4: Environmental effects matrix

Sensitivity of resource	Magnitude of Impact				
		High	Medium	Low	Negligible
	High	Major	Major	Moderate	Minor
	Medium	Major	Moderate	Minor	Negligible
	Low	Moderate	Minor	Negligible	Negligible
	Negligible	Minor	Negligible	Negligible	Negligible

5.4.2.11 In general, any likely effect (be it adverse or beneficial) assessed as ‘major’ or ‘moderate’ would be considered to be ‘significant.’ This is a widely used methodology based on current best practice. However, where the approach to classification of significance differs from this, it will be outlined in each technical assessment.

5.4.3 Cumulative and Combined Effects

5.4.3.1 The EIA Regulations require that the ES includes a description of the cumulation of effects as a result of:

- 1) more than one effect on a receptor from the Proposed Development (intra-project or ‘combined’ effects); and/ or
- 2) with other existing or approved projects (inter-project or ‘cumulative’ effects); which in-combination with each other, may be more (or less) than the sum of the individual effects.

5.4.3.2 Combined effects occur when a resource, receptor or group of receptors are potentially affected by more than one source of direct environmental impact resulting from the same development. For example, a community may be affected by noise and dust effects resulting from the construction phase activities of a single development.

5.4.3.3 A cumulative assessment is undertaken to identify whether other developments may lead to an elevated effect on the environment during construction, or once a development is built and in use. Other developments need to be of a sufficient scale and/ or proximity to the Proposed Development for potential cumulative effects to be likely. Other developments may also precede the Proposed Development being assessed thereby changing future baseline conditions, or in some cases introducing new sensitive receptors (and would be considered in the future baseline assessments within the ES).

5.4.3.4 **Section 17: Cumulative and In-Combination Effects** provides an overview of the approach to undertaking the cumulative effects assessment. Cumulative effects where these are scoped into the assessment will be assessed within technical topic chapters, aligned with guidance in PINS Advice Note on Cumulative Effects Assessment. The ZoI for cumulative effects will vary on a topic-by-topic basis and will be defined in the assessments as may be relevant where cumulative effects are scoped into the assessment.

5.4.4 Limitations and assumptions

- 5.4.4.1 In accordance with the EIA Regulations, any difficulties encountered during assessment work that could affect the assessment and limitations and assumptions used for individual assessment areas will be set out in each chapter of the ES.

5.5 Mitigation, monitoring and enhancement measures

- 5.5.1.1 Where adverse effects can be reduced to acceptable levels through incorporation of appropriate design or management measures, these will be identified within the Commitments Register of the ES along with an explanation of how such measures will be secured.
- 5.5.1.2 Opportunities for environmental enhancement, and the delivery of environmental benefits, will also be sought through the ongoing design of the Proposed Development and where these are proposed, reported in the ES that accompanies the Application.
- 5.5.1.3 Where appropriate, monitoring procedures will be identified to address any likely residual significant adverse effects in order to measure the effectiveness of the mitigation proposed. A range of supporting management plans will be produced to secure mitigation and will accompany the Application (these are outlined within the environmental topic **Sections 6 to 17**).

5.6 Competent experts

- 5.6.1.1 In accordance with the regulation 14(4) of EIA Regulations, a Statement of Competence will be included within the ES, outlining the relevant expertise or qualifications of the experts who undertook the EIA.
- 5.6.1.2 The EIA will be led by Arup. Arup is a member of the Institute of Environmental Management and Assessment (IEMA) EIA Quality Mark. The EIA Quality Mark is a scheme operated by IEMA that allows organisations that lead the co-ordination of statutory EIAs in the UK to make a commitment to excellence in their EIA activities and have this commitment independently reviewed. The EIA Quality Mark is a voluntary scheme.
- 5.6.1.3 Reading Agricultural Consultants has prepared **Section 15: Agriculture and Soils**. All other sections have been prepared by Arup.

6. Climate Change Resilience

6.1 Introduction

6.1.1.1 This section outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in **Section 2: Site Description and the Proposed Development**, in respect of climate change resilience (CCR) and in-combination climate change impacts (ICCI).

6.1.1.2 As set out within the IEMA EIA Guide to: Climate Change Resilience & Adaptation⁵¹, there are two key strands to assessing climate adaptation issues within the EIA:

“the risks of changes in the climate to the project (i.e. the resilience or conversely the vulnerability of a project to future climate changes) and the extent to which climate exacerbates or ameliorates the effects of the project on the environment (i.e. ‘in-combination’ effects)”.

6.1.1.3 This section sets out the relevant legislation, policy, standards and guidance, study area, baseline conditions, and a high-level assessment of potential impacts for the following assessments:

- **Vulnerability of the Proposed Development to climate change (CCR assessment):** An assessment of the resilience of the Proposed Development to the potential effects arising from projected changes in future climate.
- **ICCI assessment:** An assessment of the potential impacts of future climate conditions to act in-combination with the impacts of the Proposed Development on other environmental receptors.

6.1.1.4 Other environmental topics will refer to and utilise the existing baseline and future baseline conditions outlined in Section 6.5 of this EIA Scoping Report and the climate baseline and projections that will be outlined in the ES that accompanies the Application.

6.2 Study Area and Data Sources

6.2.1 Desk-top sources used

6.2.1.1 The following desk-top sources have been used to inform the existing baseline conditions of the study area for the assessment of climate resilience:

- HadUK weather data: HadUK-Grid is a collection of gridded climate variables derived from the network of UK land surface observations⁵²; and
- the projected climate data for the East Midlands region – UK Climate Projections 2018 (UKCP18), for the highest emissions scenario (Representative Concentration Pathway RCP8.5), and 50% probability of occurrence⁵³.

6.2.1.2 The study area for the CCR assessment is the boundary of the Proposed Development i.e. the Site, as set out in **Figure 1.1: Site Location Plan**. It includes all land required for the assets and infrastructure which constitute the Proposed Development during its construction, operation and decommissioning phases and surrounding areas that may

impact the Proposed Development (e.g. rivers that may provide a source of flood risk).

- 6.2.1.3 Climate change projection data is available for grid cells across the UK. The key areas of the Proposed Development are covered by two 12km grid cells. As discussed in **Section 2: Site Description and the Proposed Development**, the locations of the solar PV infrastructure and associated development will be determined by the outcome of the environmental surveys and assessment work. Given the extent of the Grid Cable Route Search Area, data was taken from the grid cell to the south (co-ordinates: 52.715202, - 0.538956); however, it is considered that due to proximity to the other cells, this is likely to be representative of the future changes to climate for the Proposed Development. The CCR assessment will include all relevant potential climate hazards associated with the Proposed Development.

6.3 Planning Policy Context and Guidance

- 6.3.1.1 Legislation relevant to the Proposed Development in regard to the CCR and ICCI assessment is outlined below in:

- The Climate Change Act 2008, as amended by the Climate Change Act (2050 Target Amendment Order 2019⁸; and
- Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

- 6.3.1.2 Policies at a national level relevant to the Proposed Development in regard to climate change are outlined below. Local planning policies relevant to this topic will be identified in the ES that accompanies the Application:

- Overarching National Policy Statement for Energy (EN-1);
- Draft Overarching NPS for Energy (Draft EN-1) (2025);
- National Policy Statement for Renewable Energy Infrastructure (EN-3);
- Draft NPS for Renewable Energy Infrastructure (Draft EN-3) (2025);
- National Policy Statement for Electricity Networks Infrastructure (EN-5);
- Draft NPS for Electricity Networks Infrastructure (Draft EN-5) (2025);
- National Planning Policy Framework; and
- UK Climate Change Risk Assessment⁵⁴.

- 6.3.1.3 Standards and guidance relevant to the Proposed Development in regard to climate change is outlined below:

- Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation.

6.3.2 Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table

- 6.3.2.1 The Planning Inspectorate provides guidance on the scoping of solar projects. It proposes that a description should be included of the potential climate change impacts both now and in the future, considering both the lifetime of the Proposed Development and appropriate future climate change projections, such as flooding from surface and fluvial flood risk. This is evidenced further within **Section 6.6: Potential Impacts and Effects** and **Section 6.8: Likely Significant Effects**. Associated assumptions are listed in one location within **Section 6.10: Summary**. **Section 6.7: Design, Mitigation and Enhancement Measures** provides further details of the proposed mitigation measures

considering the above examples, as may be relevant.

6.4 Assessment Methodology

6.4.1 Desk-based study

- 6.4.1.1 To understand the future climate hazards posed to the Proposed Development during the operational stage, the following climate change projection data will be gathered:
- Future projected climate conditions and extreme weather events for the area encompassing the Proposed Development will be provided for the 2050s-2080s⁴. These time periods cover the anticipated operational life of the Proposed Development (60 years).
 - Historical baseline data will be obtained from HadUK data provided by Met Office. Projected changes in average climate conditions will be obtained from the UKCP18 probabilistic climate change projections (both Probabilistic⁵⁵ and Regional⁵²) of climate change to establish the future climate baseline.
 - In the ES, climate change projections for a range of meteorological parameters will be presented for different probability levels within the RCP8.5 high emission scenario⁵⁶ for the near-term and long-term future time periods for the 2050s-2080s.
- 6.4.1.2 Using this data, a high-level qualitative climate change risk assessment will be undertaken. The assessments within the ES will be carried out with due consideration of the IEMA guidance⁵¹.

6.4.2 Impacts and Effects Prediction

- 6.4.2.1 Throughout this methodology the terms ‘impact’ and ‘risks’ are used. These are defined through examples as follows:
- Impact: the impact of climate change within the location of the Proposed Development e.g. increased rainfall (change in climate) results in increased flooding (climate hazard). The terms climate hazard and impact of climate change are used interchangeably throughout this methodology.
 - Risks: the result of the climate hazard on the receptors within the Proposed Development e.g. increased flooding (climate hazard) may cause damage to Proposed Development (risk).
- 6.4.2.2 Using the IEMA guidance⁵¹, the assessment will include two steps in order to assess each impact and identify if the risk is significant. The two steps include:
- Qualitative assessment of impacts: Each identified impact will be incorporated into a risk assessment and scored based on a combination of;
(1) the sensitivity of the receptor;
(2) the likelihood of the hazard/ impact occurring; and
(3) the consequence of the resultant impact.
- 6.4.2.3 The risk assessment will also consider any existing mitigation measures within the design and operation of the Proposed Development and identify the need for any

⁴ Note: UKCP18 data for the ‘regional’ 12 km projections, which provide information on local climate impacts within a defined 12 km square location is only available up to 2079.

additional resilience measures to protect against the impacts of climate change, based on those risks assessed as ‘high’ or ‘very high’. High-level resilience measures will be identified through liaison with the Applicant, key engineering and design experts as appropriate.

6.4.3 Classification of Significance

- 6.4.3.1 As per IEMA guidance⁵¹, it is acknowledged that there is no legislative definition of ‘significance’; the judgement of whether an effect is significant/ the level of significance is based on professional opinion of the topic specialist, in conjunction with project team.
- 6.4.3.2 For the CCR assessment, IEMA guidance states:
“appropriate criteria for sensitivity, magnitude and significance for the climate resilience assessment should be developed on a project-by-project basis by the CCAR Coordinator in conjunction with the EIA Coordinator, and should take into account the aims/purpose of the project.”
- 6.4.3.3 It is considered unlikely that significant climate resilience effects will be identified, or, where the potential for these are identified it is expected that adequate mitigation will be included within wider environmental and engineering design approaches. This will be confirmed within the ES.

6.5 Baseline Conditions

6.5.1 Existing baseline

- 6.5.1.1 Information regarding historical climate conditions for the Proposed Development was obtained from HadUK observation data⁵². HadUK data includes various climate metrics which mirror projection data to provide context for the future baseline. Historical climate conditions are provided within the ‘Baseline observation (1980-2010)’ column of Table 6-1.

6.5.2 Future baseline

- 6.5.2.1 IEMA Guidance recommends the use of the Met Office’s UKCP18 when defining the future baseline. UKCP18 data uses the latest climate science to provide observations and climate change projections up to 2100 in the UK. RCP 8.5 has been selected for the future baseline, this represents a high emissions and high impact future scenario and is a conservative approach to climate scenario selection.
- 6.5.2.2 Table 6-1 contains both:
- historical baseline information; and
 - future climate change projections and associated climate hazards, established using projected climate data from the UK Climate Projections 2018 (UKCP18) projections.

Table 6-1: Baseline and projection data for climate metrics⁵.

Metric	Unit	Baseline observation (1981-2010)	Future climate (2050 to 2080)		
			10th percentile	50th percentile	90th percentile
Summer mean temperature	°C	+16	+19.6	+20.5	+21
Winter mean temperature	°C	+4.1	+6	+6.8	+7.3
Average daily maximum temperature in summer	°C	+20.8	+25.3	+26.3	+27.2
Average daily minimum temperature in winter	°C	+1.2	+3	+3.9	+4.4
Number of hot days (daily maximum temperature higher than 25°C)	days / year	13.4	50.2	66	72.4
Average number of heatwaves per year (3 days above 27°C) ⁶	occurrences/ year	0.6	3.5	5.3	6.4
Dry spells (10 days or more with no precipitation)	occurrences/ year	3.8	4.2	4.8	5.1
Average summer precipitation	mm/day	1.9	1.2	1.4	1.5
Average winter precipitation	mm/day	1.6	1.8	2	2.1
Heavy rainfall (annual number of days with >20mm rainfall)	days/ year	2.9	2.6	3.5	4

6.5.2.3 Table 6-1 shows that in the future, the location of the Proposed Development is projected to experience changes in climate and associated extreme weather events, most notably:

- Increases in the occurrences and intensity of drought events - summers are projected to be noticeably drier with a 18% reduction in average summer precipitation compared to the baseline.

⁵ All projections data was taken for RCP 8.5. Future projection data is presented for three percentiles (10th, 50th and 90th). Values have been rounded to one decimal place.

⁶ Note: A UK heatwave threshold is met when a location records a period of at least three consecutive days with daily maximum temperatures meeting or exceeding the heatwave temperature threshold. The Met Office publishes heatwave threshold values per county across the UK. The threshold value for Rutland County is 27 degrees Celsius.

- Increases in extreme heat events - heatwaves are projected to increase from an average of 0.6 per year in the historical baseline, to 5 heatwaves per year in the future. Mean summer temperatures are also projected to increase by 4.5°C, with the hottest part of the day in summer months projected to be 6°C warmer compared to the baseline. The number of days reaching above 25 °C is projected to increase more than 5-fold.
- Increases in flood risk - winters are anticipated to be noticeably wetter in the future with average winter precipitation increasing by approximately 22% compared to the baseline, in addition to a 20% increase in the number of heavy rainfall days.

- 6.5.2.4 There are a number of climate variables not included in the UKCP18 dataset, including data on storms, winds and lightning. Insight into these variables was obtained from UKHad data⁵² and Met Office Hadley Centre data showing that:
- Storms: There are no compelling trends in changes to storminess, as determined by maximum gust speeds, from the UK wind network over the last four decades. From 2050 onwards, increase in the frequency and intensity of winter storms is expected over the UK⁵².
 - Wind: There is insufficient data to establish baseline.
 - Lightning: The data predicts a future increase in spatially averaged lightning frequency over the UK in summer and to a lesser extent in spring, little change in winter, and a decrease in autumn. In winter, future decreases in lightning are expected over the sea to the north and west of the UK, where high flash rates are seen in the present day⁵².

- 6.5.2.5 The future climate in the UK can also be broadly summarised as the following trends:
- milder, wetter winters (increase in mean winter rainfall; increase in mean temperatures; decreased frequency of cold weather events);
 - warmer, drier summers (increased frequency of dry spells; increase in mean temperatures; Decrease in mean summer rainfall); and
 - increase in frequency of extreme weather (increase in high temperatures and heatwaves; increase in droughts; increased frequency of heavy rainfall events).

6.6 Potential Impacts and Effects

6.6.1 Climate Change Resilience

Construction

- 6.6.1.1 The timescales currently anticipated for construction are outlined in **Section 2.5: Construction Programme and Activities** of this EIA Scoping Report. Climate change is not expected to be so significant within the construction programme timescales as to require additional mitigation beyond current best practice, including measures within the oCEMP. It is anticipated that current environment, health and safety regimes during the construction phase will provide appropriate levels of mitigation for changes in climate during the construction period. On the basis of the commitment to a oCEMP, with a final CEMP secured by Requirement, it is proposed that CCR impacts during construction are **Scoped Out**.

Operation and Maintenance

- 6.6.1.2 The opening year when the Proposed Development is likely to become operational is 2031 and the Proposed Development will be consented to operate for 60 years. As set out in **Section 6.4: Assessment Methodology**, the area surrounding the Proposed Development is projected to experience changes in climate and associated extreme weather events in the future. Table 6-2 presents each assessed climate hazard and the likely impacts it may have upon the Proposed Development. It also shows the potential impacts associated with each of these hazards on the physical assets of the Proposed Development and staff working during the operational phase.

Table 6-2: Climate and extreme weather hazards assessed and the likely impacts it may have upon the Proposed Development

Climate hazard	Likely impacts
Increase in extreme heat events	Heat stress could impact materials and infrastructure associated with the Proposed Development. In extreme scenarios temperature thresholds for equipment such as the BESS and On-Site Substation(s) components may be exceeded, resulting in malfunction. In addition, heatwaves can reduce solar panel power generation. Extreme heat could cause health risks to operational staff, increasing the likelihood of heat related illness such as heat stroke or heat exhaustion. Those working outdoors and/ or in physically demanding jobs would be most vulnerable.
Increase in storm frequency and intensity	High winds could cause direct or indirect (via debris) damage to assets such as the PV panels, BESS and On-Site Substation(s). Lightning could also damage assets and cause the malfunction of electrical equipment.
Increase in heavy rainfall and the risk of flooding	Heavy rainfall could contribute to land subsidence and damage to PV panels, infrastructure, building structures and/ or drainage systems. Heavy rainfall and seasonal shifts in rainfall will also contribute to increased flood risk in the future.
Increased risk of drought	Drought could cause ground cracking and subsidence which could undermine the foundations of PV panels, infrastructure and building structures.
Sea level rise	The Proposed Development is not located in an area that is susceptible to sea level rise.

- 6.6.1.3 The impact of changes to the future climate for the Proposed Development during the operational phase can, to an extent, be mitigated through design. Embedded mitigation measures proposed to reduce the likelihood and/ or consequences are set out in **Section 6.7: Design, Mitigation and Enhancement Measures**. It is proposed that CCR impacts during operation are Scoped In.

Decommissioning

- 6.6.1.4 The nature of risks during decommissioning (which may last around 24 months) are considered similar to those during construction. The impact of changes to the future climate for the Proposed Development at the time of decommissioning can, to an extent, be mitigated through the provision of management plans including the DEMP. Embedded mitigation measures proposed to reduce the likelihood and/ or consequences are set out in **Section 6.7.1: Embedded Measures**.

6.6.2 In-combination Climate Change Impacts

- 6.6.2.1 The ICCI assessment identifies how the resilience of various receptors in the surrounding environment is affected by a combination of future climate conditions and

the Proposed Development. The climate parameters relevant to the Proposed Development are detailed in Table 6-3 below together with the rationale for scoping in or out.

6.6.2.2 On the basis of the information presented in Table 6-3 an ICCI assessment is proposed to be **Scoped Out**.

Table 6-3: Climate and extreme weather hazards assessed and the likely in-combination climate impacts it may have upon the Proposed Development

Climate hazard	Scoping conclusion	Scoped in / out
Increase in extreme heat events	As per Table 6-1, impacts relating to increase in extreme heat events are anticipated, however these temperature increases in-combination with the Proposed Development are not expected to have a significant impact upon receptors identified by other environmental disciplines. Sufficient mitigation for potential future climate change impacts e.g. resulting in increased growth rates of vegetation and interaction with environmental disciplines including cultural heritage will be considered during the operation stage.	Scoped Out for construction, operational and decommissioning stages.
Increase in storm frequency and intensity	As per Table 6-1, changes in storm frequency/ wind events are uncertain. It is not anticipated that the Proposed Development in-combination with any changes in wind patterns will have a significant impact upon environmental receptors identified by other topic disciplines.	Scoped Out for construction, operational and decommissioning stages.
Increase in heavy rainfall and the risk of flooding	As per Table 6-1, projected changes in climate may lead to an increase in heavy precipitation events that could lead to flash flooding or changes to surface water/ groundwater levels. Section10: Water Environment and Flood Risk considers the flood risk (including climate change) to the Site, and to potential off-site risk as a result of the Proposed Development. No significant impacts on surface water/ groundwater levels are expected as a result of precipitation changes, in-combination with the Proposed Development, as precipitation to ground will not be significantly hindered and the conversion of agricultural land should increase infiltration and reduce runoff rates. The Proposed Development, in-combination with projected changes in precipitation, is also not expected to have a significant impact upon receptors identified by other environmental disciplines.	Scoped Out for construction, operational and decommissioning stages.
Increased risk of drought	As per Table 6-1, impacts relating to drought are anticipated, however, drought patterns in-combination with the Proposed Development are not expected to have a significant impact upon environmental receptors identified by other topic disciplines. Sufficient mitigation for potential future climate change impacts e.g. drought resistant planting and regular watering of soft landscaping features in periods of drought should be considered during the operation stage.	Scoped Out for construction, operational and decommissioning stages.
Sea level rise	The Proposed Development is not located in an area that is susceptible to sea level rise.	Scoped Out for construction, operational and decommissioning stages

6.7 Design, Mitigation and Enhancement Measures

6.7.1 Embedded Measures

- 6.7.1.1 The Proposed Development is currently evolving through an environmentally led iterative design process (as described in **Section 2: Site Description and the Proposed Development**). At the outset of this design process the Applicant has set out a series of Design Principles (refer to **Section 2.4: Environmental Design**) which they are seeking to achieve, as far as reasonably practicable, in the design of the Proposed Development.
- 6.7.1.2 Embedded measures can comprise modifications to the design of a scheme made during the pre-application phase that seek to avoid or minimise impacts, that are an inherent part of the design and do not require additional action to be taken. Therefore, embedded measures comprise, or be informed by, the Design Principles as well as other mitigation measures.
- 6.7.1.3 Embedded measures for the Proposed Development relevant to CCR are likely to include:
- Water Environment and Flood Risk: SuDS will be provided at source, ensuring that surface water runoff is managed consistently with existing site conditions.
 - Water Environment and Flood Risk: Access tracks will be permeable (compacted gravel) to allow water to filtrate through and maintain greenfield runoff rates.
 - Water Environment and Flood Risk: A FRA will be undertaken to consider the risk of potential extreme flood events as a result of climate change and will identify suitable mitigation which will be embedded into the design. Further details on measures pertaining to flood risks can be found in **Section 10: Water Environment and Flood Risk**.
 - Ecology and Biodiversity: Any landscaping containing planting or planting of species in other areas will consider the resilience of the species to future climates e.g. drought or flood resistant species.

6.7.2 Management Plans

- 6.7.2.1 A suite of management plans will be in place for the Proposed Development. Outline versions of these management plans will incorporate standard industry best practice, considered as embedded measures, as well as any further mitigation that is deemed required as a result of the EIA process. These will be submitted with the Application to secure the commitments contained within.
- 6.7.2.2 Those relevant to CCR include:
- oCEMP;
 - oCTMP;
 - oOEMP;
 - oLEMP; and
 - oDEMP.
- 6.7.2.3 The oCEMP will provide an overview of management measures in particular related to flood risk and extreme weather events during construction phase. This mitigation further justifies the decision to **Scope Out** the assessment of CCR for the construction phase of

the Proposed Development.

- 6.7.2.4 For the decommissioning phase, embedded mitigation will be included in the ES which commits the Applicant to review and consider CCR risks as part of a DEMP to be produced prior to eventual decommissioning of the Proposed Development; recognising that the final DEMP will be developed a number of decades from now when climate conditions for the time period will be better understood and technologies and techniques to mitigate any risks will have evolved. The production of a DEMP would be secured by Requirement of the draft DCO.

6.8 Likely Significant Effects

6.8.1 Climate Change Resilience Assessment

- 6.8.1.1 Table 6-4 summarises the potential construction, operation and decommissioning impacts relevant to both the CCR and ICCI assessments proposed to be Scoped In or **Scoped Out** of the EIA.

Table 6-4: Climate change resilience elements scoped in or scoped out of EIA

Climate hazard	Impact to the Proposed Development	Scoping conclusion	Construction	Operation	Decommissioning
Increase in average temperatures and extreme heat events (i.e. heatwaves)	Heat stress of materials and structures, reduction in lifespan or malfunction. Extreme heat could cause heat health risks to staff.	It is likely that design thresholds for extreme heat will allow for changes to future temperatures. Therefore, extreme heat is unlikely to have any likely significant effects on the Proposed Development during the appraisal period, although this will be confirmed during further EIA process.	Scoped Out	Scoped In	Scoped In
Increase in storm frequency and intensity (i.e. wind and lightning)	High winds could cause direct or indirect (via debris) damage to assets. Lightning could also damage the assets and cause the malfunction of electrical equipment. Storms could cause disruption and safety risks during decommissioning.	Consideration of future projections of wind speed and storm intensity and incorporating these into the design of structures and assets can enhance resilience to such a hazard. Therefore, storms are unlikely to have any significant effects on the Proposed Development during the appraisal period, although this will be confirmed during further EIA process.	Scoped Out	Scoped In	Scoped In
Increase in heavy rainfall and the risk of flooding	Heavy rainfall could contribute to land subsidence and damage to structures or drainage systems. Heavy rainfall and seasonal shifts in rainfall will also contribute to increased flood risk in the future.	After mitigation, increased rainfall and risk of flooding are unlikely to have any likely significant effects on the Proposed Development.	Scoped Out	Scoped In	Scoped In
Increased risk of drought	Drought could cause ground cracking and subsidence.	Drought is unlikely to have any likely significant effects on the Proposed Development, although this will be confirmed during further EIA process.	Scoped Out	Scoped In	Scoped In
Sea level rise	Sea level rise could contribute to increased flood risk in the future in locations that are close to the coast, or in tidally influenced locations.	The Proposed Development is not located in an area that is susceptible to sea level rise. No significant effects are likely in relation to this matter.	Scoped Out	Scoped Out	Scoped Out

6.8.2 In-combination Climate Change Impact Assessment

6.8.2.1 The ICCI assessment identifies how resilience of various receptors in the surrounding environment may be affected by a combination of future climate conditions and the Proposed Development. The climate parameters relevant to the Proposed Development are detailed in Table 6-5 below together with the rationale for scoping.

Table 6-5: Climate parameters for the in-combination climate change impact of the Proposed Development

Climate hazard	Scoping conclusion	Construction	Operation	Decommissioning
Increase in extreme heat events	As per Table 6-1 projected temperature increases in-combination with the Proposed Development are not expected to have any likely significant effects upon environmental receptors identified by other topic disciplines.	Scoped Out	Scoped Out	Scoped Out
Increase in storm frequency and intensity	As per Table 6-1 projected changes in wind patterns in-combination with the Proposed Development are not expected to have any likely significant effects upon environmental receptors identified by other topic disciplines.	Scoped Out	Scoped Out	Scoped Out
Increase in heavy rainfall and the risk of flooding	Climate change may lead to an increase in substantial precipitation events that could lead to flash flooding or changes to groundwater levels. However, no likely significant effects on surface water or groundwater levels are expected as a result of precipitation changes, in-combination with the Proposed Development, as the flow of precipitation to ground will not be significantly hindered as a result of the Proposed Development. The Proposed Development, in-combination with projected changes in precipitation, is also not expected to have a significant impact upon receptors identified by other environmental disciplines.	Scoped Out	Scoped Out	Scoped Out
Increased risk of drought	As per Table 6-1 projected changes in drought patterns in-combination with the Proposed Development are not expected to have any likely significant effects upon environmental receptors identified by other topic disciplines.	Scoped Out	Scoped Out	Scoped Out

6.9 Assumptions, limitations and uncertainties

- 6.9.1.1 It is assumed that the data, information, and sources obtained from all organisations, institutions, bodies, or individuals is accurate at the time of its acquisition and/ or consultation. Furthermore, the assumption is made that all citations are correct and have been applied by the original author as applicable. The assumption is made that where any information has been obtained from respected open-source repositories, these sources were accurate at the time of consultation and all citations, copyright, and distribution requirements are correct and clearly communicated.
- 6.9.1.2 The limitations and assumptions for using the proposed methodology are:
- the study area for the CCR assessment is based on the construction footprint and includes temporary and completed works within the boundary of the Site;
 - the assessment method will be largely qualitative, particularly the process of scoring risks;
 - there is limited methodological guidance on the assessment of individual risks;
 - there is inherent uncertainty in climate change projections. The quantitative data used in this study was obtained from UKCP18, the latest set of probabilistic projections for the UK; and
 - there is often uncertainty in the relationship between changes in climate hazards and the respective response in terms of asset performance. This uncertainty has been assessed qualitatively.
- 6.9.1.3 A full list of assumptions and limitations will be provided within the ES.

6.10 Summary

- 6.10.1.1 A summary of those matters proposed to be **Scoped In** and **Scoped Out** of the assessment are set out Table 6-6 below.

Table 6-6: Climate change resilience scoping summary

Aspect	Phase	Scoped In / Out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Climate Change Resilience	Construction	Scoped Out	Climate conditions are not expected to change significantly within the construction stage. The full justification for scoping out this aspect is provided in Section 6.8: Likely Significant Effects .
	Operation	Scoped In	N/A
	Decommissioning	Scoped In	N/A
In-combination climate change impacts	Construction	Scoped Out	Justification for scoping out this aspect is provided in Table 6-5.
	Operation		
	Decommissioning		

7. Greenhouse Gases

7.1 Introduction

- 7.1.1.1 This section outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in **Section 2: Site Description and the Proposed Development**, in respect of Greenhouse Gas (GHG) emissions⁷.
- 7.1.1.2 This section sets out relevant legislation, policy, standards and guidance, the study area, baseline conditions, and a high-level assessment of potential impacts associated with construction, operation and maintenance, and decommissioning of the Proposed Development. It also identifies mitigation measures to reduce GHG emissions through the life cycle of the Proposed Development.

7.2 Study Area and Data Sources

7.2.1 Desk-top sources used

- 7.2.1.1 A quantitative assessment of baseline conditions has not been undertaken for this EIA Scoping Report, and therefore, there are no data sources to be listed.

7.2.2 Study area

- 7.2.2.1 The GHG assessment study area is defined by the boundary of the Site, as shown in **Figure 1.1: Site Location Plan** and covers all sources and sinks of GHG emissions associated with construction, operation, maintenance and decommissioning of the Proposed Development. It also includes relevant indirect emissions arising outside the Site, for example, emissions embedded within the construction materials arising as a result of the energy used for their production and transport to Site; and energy consumption during operation of the Proposed Development within the Site. The spatial study area for the GHG assessment is therefore determined by the GHG emissions sources that fall within the scope of the quantification process for the assessment.

7.3 Planning Policy Context and Guidance

- 7.3.1.1 The methodology has been developed in accordance with the relevant legislation and industry guidance on assessing GHG emissions.

7.3.2 Legislation

- 7.3.2.1 Legislation relevant to the Proposed Development in regard to GHG emissions is outlined below:
- The Kyoto Protocol, United Nations Framework Convention on Climate Change (UNFCCC)⁵⁷;

⁷ The terms ‘carbon’ and ‘greenhouse gases’ are often used interchangeably. For the purpose of this EIA Scoping Report the terms ‘carbon’ and ‘GHG’ are used to mean the all-greenhouse gases (as defined in the Kyoto Protocol) emitted, in units of CO₂e. See UNFCCC (1998) Kyoto Protocol to the United Nations Framework Convention On Climate Change.

- Paris Agreement, UNFCCC⁵⁸; and
- The Climate Change Act 2008, as amended by the Climate Change Act (2050 Target Amendment) Order 2019 (and The Carbon Budget Order 2021 Climate Change Committee Seventh Carbon Budget⁵⁹).

7.3.3 Policy

7.3.3.1 Policies at a national level relevant to the Proposed Development in regard to GHG emissions are outlined below. Any local planning policies relevant to this topic will be identified in the ES that accompanies the Application:

- Overarching National Policy Statement for Energy (EN-1), 2024;
- Draft Overarching NPS for Energy (Draft EN-1) (2025);
- National Policy Statement for Renewable Energy Infrastructure (EN-3), 2024;
- Draft NPS for Renewable Energy Infrastructure (Draft EN-3) (2025);
- National Planning Policy Framework, 2024;
- The Clean Growth Strategy⁶⁰;
- UK's Nationally Determined Contribution⁶¹;
- British Energy Security Strategy⁴;
- Net Zero Strategy: Build Back Greener⁶²;
- Powering Up Britain: Net Zero Growth Plan⁷; and
- UK Clean Power 2030 policy paper⁹.

7.3.4 Standards and Guidance

7.3.4.1 Standards and guidance relevant to the Proposed Development in regard to GHG emissions are outlined below:

- IEMA, 'EIA: Guide to Assessing GHG Emissions and Evaluating their Significance' (2022)⁶³;
- Low Energy Transformation Initiative (LETI) Embodied Carbon Primer⁶⁴;
- Royal Institution of Chartered Surveyors (RICS), 'Whole life carbon assessment for the built environment' (2nd Edition)⁶⁵; and
- British Standards Institute - PAS 2080:2023 'Carbon Management in Buildings and Infrastructure' (2023)⁶⁶.

7.4 Assessment Methodology

7.4.1 Desk-based study – proposed methodology

7.4.1.1 The GHG assessment will quantify and report the GHG emissions anticipated to be generated or avoided by the Proposed Development. This will be reported in tonnes of carbon dioxide equivalent (tCO₂e), a single metric of the global warming potential of the main GHG emissions.

7.4.1.2 The temporal boundary for GHG emissions assessment constitutes the construction phase (24 months), operational phase (60 years) and decommissioning phase (24 months).

7.4.1.3 The GHG emissions for the Proposed Development will be calculated using the formula:

$$\text{Activity} \times \text{GHG factor} = \text{carbon emissions}$$

Where:

- Activity data – a measure of the quantity of an activity; and
- GHG factor – a measure of the GHG emissions per unit of activity.

7.4.1.4 GHG factors will be obtained from industry recognised sources commonly used in GHG assessments, such as:

- Greenhouse gas reporting conversion factors (DESNZ)⁶⁷;
- The Inventory of Carbon and Energy (ICE) database⁶⁸; and
- Valuation of energy use and GHG emissions for appraisal: supplementary guidance to the HM Treasury Green Book⁶⁹.

7.4.1.5 Where site-specific data sources are unavailable, a literature review will be undertaken for the range of processes and technologies within the Proposed Development to understand associated emissions.

7.4.1.6 The methodology focuses on assessing the impact of the Proposed Development on GHG emissions by quantifying the net GHG emissions arising from each life cycle stage aligned with the GHG Protocol⁷⁰. Emissions associated with the Proposed Development will be compared to the baseline Do-Minimum (DM) scenario (as described in **Section 7.5: Baseline Conditions**) to quantify the net impact of the Proposed Development.

7.4.2 Assessment of Significance

7.4.2.1 The IEMA guidance⁶³ revised the overall approach to assessing the impacts and significance of GHG emissions from projects. The guidance directs that emissions must be contextualised as part of the assessment process (for example, but not exclusively, against national carbon budgets).

7.4.2.2 The guidance restates the principles that:

- GHG emissions from all projects will contribute to climate change, the largest interrelated cumulative environmental effect; and
- the consequences of a changing climate have the potential to lead to significant environmental effects on all topics in the EIA Directive (e.g. human health, biodiversity, water, land use, air quality).

7.4.2.3 The guidance notes that some projects will lead to increases in emissions but that this alone does not represent a significant effect. Instead, it is the role of the suitable qualified experts carrying out the assessment to consider the scale of changes in emissions; the context within which these are expected to occur; the mitigation undertaken to minimise negative impacts; and the overall alignment of the project to achievement of the UK's carbon targets.

7.4.3 Sensitivity of Receptors

- 7.4.3.1 The sensitivity of the receptor (i.e. the global climate) to increases in GHG emissions is always defined as ‘high’ as any additional GHG impacts could compromise the UK’s ability to reduce its GHG emissions and therefore meet its future 5-year carbon budgets and because of the critical importance of limiting global warming to below 2°C this century, as broadly asserted by the International Paris Agreement and the climate science community.

7.4.4 Magnitude

- 7.4.4.1 For the GHG emissions assessment, the magnitude of impact considers the output of the GHG quantification process, i.e. the Proposed Development’s life cycle GHG footprint, in the context of its contribution to the UK’s carbon budgets and the possible impact of the Proposed Development on the UK meeting its net zero target. Emissions from the Proposed Development will be contextualised against appropriate carbon budget periods to understand its relative contribution to climate change. Further detail will be provided within the ES.

- 7.4.4.2 The UK Carbon Budgets⁵⁹ considered relevant to the assessment are set out in Table 7-1.

Table 7-1: Carbon Budget Periods relevant to this assessment

Carbon Budget & Period	Carbon Budget Limit	Reduction below 1990 levels
Fourth (2023 – 2027)	1,950 MtCO ₂ e	50% by 2025
Fifth (2028 – 2032)	1,725 MtCO ₂ e	68% by 2030 ^{8*}
Sixth (2033 – 2037)	965 MtCO ₂ e	78% by 2035
Proposed Seventh (2038 – 2042) ¹¹	535 MtCO ₂ e	87% lower than levels in 1990 (90% lower excluding emissions from international aviation and shipping)

- 7.4.4.3 The 6th carbon budget aligns with the legislated 2050 net zero commitment and the proposed 7th carbon budget included GHG emissions associated with international aviation and shipping. The Committee on Climate Change’s (CCC) recommendations for the 7th carbon budget include assumptions that electrification and low carbon electricity supply make up the largest share of emissions reductions in the pathway to net zero, accounting for 60% by 2040.
- 7.4.4.4 It is noted that the contribution of most individual projects to national level budgets will be small, so the UK context will have limited value. It is proposed that the GHG assessment, therefore, uses the IEMA guidance⁶³ to assess the likely significance of effects, with the UK carbon budgets being used to provide context to the GHG emissions.

⁸ *Originally 57% when Fifth Carbon Budget was enshrined in law, has recently been increased to 68% as the UK’s National Determined Contribution ahead of the United Nations’ Conference of the Parties (26) (COP26) in November 2021.

7.4.5 Significance of Effects

- 7.4.5.1 The IEMA guidance 63⁶³ states that:
“when determining significance, any embedded/ committed mitigation measures that form part of the design should be considered.”
- 7.4.5.2 Therefore, the embedded mitigation within the design of the Proposed Development will be incorporated into the determination of significance.
- 7.4.5.3 When evaluating significance of the GHG emissions, all new GHG emissions contribute to a negative environmental impact; however, some projects will replace existing development or baseline activity that has a higher GHG profile. The significance of a project's emissions should therefore be based on its net impact over its lifetime.
- 7.4.5.4 The IEMA guidance provides criteria for assessing the significance of GHG emissions effects. Five levels of significance are presented which focus on how a project makes a relative contribution towards achieving a science based 1.5°C aligned transition towards net zero and the levels of mitigation applied. The different levels of significance are plotted against the UK's net zero compatible trajectory as presented in Table 7-2 to determine the project's significance.

Table 7-2: Significance criteria as per IEMA guidance

Effects	Level of Significance	Description
Significant adverse	Major adverse	The project's GHG impacts are not mitigated or are only compliant with DM standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero.
Significant adverse	Moderate adverse	The project's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with local and national policy goals for projects of this type. A project with moderate adverse effects falls short of fully contributing to the UK's trajectory towards net zero.
Not significant	Minor adverse	The project's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse effects is fully in line with measures necessary to achieve the UK's trajectory towards net zero.
Not significant	Negligible	The project's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net zero is achieved well before 2050. A project with negligible effects provides GHG performance that is well 'ahead of the curve' for the trajectory towards net zero and has minimal residual emissions.
Not significant	Beneficial	The project's net GHG impacts are below zero and it causes a reduction in atmospheric GHG concentration, whether directly or indirectly, compared to the without-project baseline. A project with beneficial effects substantially exceeds net zero requirements with a positive climate impact.

- 7.4.5.5 A 'minor adverse' or 'negligible' i.e. non-significant effect conclusion does not necessarily refer to the magnitude of GHG emissions being carbon neutral (i.e. zero on balance); but refers to the likelihood of avoiding severe climate change, aligning project emissions with a science-based 1.5°C compatible trajectory and achieving net zero by 2050.

7.5 Baseline conditions

7.5.1 Existing baseline

- 7.5.1.1 Aligning with IEMA guidance, the baseline DM scenario is the reference against which the impact of the Proposed Development will be compared and assessed. The DM scenario comprises existing carbon stock and sources of GHG emissions within the study area without implementation of the Proposed Development, i.e., existing emissions from the generation of grid electricity if the Proposed Development were to not proceed, over the appraisal period.
- 7.5.1.2 This existing baseline includes emissions and/ or sequestration associated with existing habitats within the Site. As described in **Section 2: Site Description and the Proposed Development**, the Site comprises a mixture of Grade 2, Grade 3 and Grade 4 agricultural land, which typically emits emissions in the form of methane (CH₄) and nitrous oxide (N₂O) from the soils⁷¹. Baseline agricultural GHG emissions are dependent on soil and vegetation types present, and fuel use for the operation of on-site vehicles and machinery associated with arable land use.

7.5.2 Future baseline

- 7.5.2.1 The future baseline for the GHG assessment reflects a business-as-usual position whereby the Proposed Development is not implemented. This includes emission and/ or sequestration from land use within the Site for agricultural purposes.
- 7.5.2.2 Over the future baseline, it is expected that indirect GHG emissions/ carbon intensity will continue to decline due to a combination of the following factors:
- national government carbon budget;
 - local carbon reduction targets; and
 - decarbonisation of industry, energy supply (including the electricity grid due to the phase out of fossil fuels) and transportation. This is in line with DESNZ projections assuming near zero carbon for grid electricity by 2050.

7.5.3 Receptors

- 7.5.3.1 GHG emissions are not geographically limited and have a global effect rather than directly affecting any specific local receptor to which a level of sensitivity can be assigned. As per IEMA guidance, the receptor is therefore the global atmosphere. The receptor has a high sensitivity, given the severe consequences of global climate change and the cumulative contributions of all GHG emission sources.

7.6 Potential Impacts and Effects

- 7.6.1.1 The Proposed Development has the potential to affect climate change (positively and negatively), during construction, operation and during decommissioning, due to the impact of GHG emissions arising directly and indirectly over the lifetime of the Proposed Development.
- 7.6.1.2 As set out in the IEMA guidance, GHG quantification within an EIA should follow the principles outlined in key documents such as the GHG Protocol Corporate Standard⁷² or

PAS 2080⁶⁶, and in doing so ensure the assessment achieves relevance, completeness, consistency, transparency and accuracy. PAS 2080 outlines a modular approach to life cycle stages for GHG emissions assessments. This approach has been used when considering potential impacts. This provides a framework for considering different emissions sources across the life cycle of the Proposed Development, and informs the methodology adopted to address inclusions and exclusions from the assessment process, and the resolution of any gaps in available data to inform the assessment.

- 7.6.1.3 Table 7-3, Table 7-4 and Table 7-5 outline potential sources of GHG emissions associated with each life cycle stage for the Proposed Development. These are presented within the modular framework set out in PAS 2080 (and other associated guidance) under headings of construction, operation, and decommissioning.

7.6.2 Construction

- 7.6.2.1 Construction of the Proposed Development is expected to take approximately 24 months. Table 7-3 summarises the potential impacts of the Proposed Development during the construction phase (life cycle modules A1 – A5).

Table 7-3: Summary of the potential construction impacts and emission sources

Whole Life Carbon Life cycle Stage	Activity	Emission source and impact (as set out within the methodology sub-section 7.4)
Product stage (A1-3)	Raw material extraction, transport to factory and manufacturing of materials.	Embodied GHG emissions associated with the required raw materials for construction of the Proposed Development.
Construction process stage (Transport) (A4)	Transportation of materials to Site.	GHG emissions from fuel consumption of vehicles used for transportation of materials to the Site.
Construction process stage (A5)	Construction activities.	GHG emissions from fuel/ energy/ water consumption of plant, construction practices and ancillary services.
	Transportation of construction workers.	GHG emissions from fuel consumption of vehicles used for transportation of workers to the Site.
	Transportation and disposal of construction waste streams.	GHG emissions from fuel consumption of vehicles used. GHG emissions released from waste disposal method.

7.6.3 Operation and maintenance

- 7.6.3.1 The operational lifespan of the Proposed Development is expected to be 60 years and will commence immediately after the end of construction.
- 7.6.3.2 The purpose of the Proposed Development is to generate low carbon electricity. The production of electricity from renewable sources such as solar has the potential to result in lower aggregate GHG emissions outside of the Proposed Development boundary by replacing electricity generated from other energy sources. However, it is expected, that the Proposed Development will still result in GHG emissions during its operational phase, although these are expected to be very small in comparison to the benefits delivered through the generation of low carbon electricity.

7.6.3.3 Table 7-4 summarises the potential impact of the Proposed Development during the operational phase (life cycle modules B1 – B5, D).

Table 7-4: Summary of potential operation impacts and emission sources

Whole Life Carbon Life cycle Stage	Activity	Emission source and impact ⁹
In-use (B1)	Non-energy-related impacts	GHG emissions associated with vegetation sequestration and GHG removals.
Maintenance, repair and replacement (B2-B4)	Routine maintenance, repair and replacement of components	GHG emissions associated with carrying out required maintenance such as annual inspections during operation including extraction, manufacture, transportation and installation energy use. Embodied carbon associated with materials used for repair and replacement activities.
Refurbishment (B5)	Planned refurbishment	GHG emissions associated with any planned refurbishment within the operational lifespan. Planned site refurbishment refers to large-scale interventions beyond routine replacement (B2-B4).
Operational energy consumption (B6), operational water consumption (B7)	Energy and water consumption	Minimal impact envisaged; however, water is likely to be used to clean panels.
Other operational emissions and user activities (B8)	Operational consumption and Site user activities	Negligible impact envisaged. Assuming no chemical or process emissions or user emissions.
Benefits beyond the boundary - Land use change (D)	Changes to currently vegetated land	Emissions associated with land use change, carbon sequestration potential in future years.
Benefits beyond the boundary - displacement of other energy sources - Electricity generation (D)	Generation of low carbon electricity	Emissions avoided through the generation and export of electricity from the Proposed Development.

7.6.4 Decommissioning

7.6.4.1 Once the Proposed Development has reached the end of its operational lifespan, it will be decommissioned. Table 7-5 summarises the impact of this decommissioning on GHG emissions (life cycle modules C1 – C4).

⁹ Construction, operational and decommissioning phase: sulphur hexafluoride (SF₆) (from its use in certain electric components such as gas-insulated switchgears and transformers during production, operation through leakage, and dismantling) is a potential source of GHG emissions over the lifetime of the Proposed Development; however it is not possible to accurately quantify the small level of fugitive emissions from the leakage of SF₆ due to insufficient data. Manufacturers of electrical switchgear and transformers are increasingly able to provide equipment that either does not contain any SF₆, or is sealed for life with extremely low leakage rates. If data is available, it will be included within the assessment.

Table 7-5: Summary of potential decommissioning impacts and emission sources

Whole Life Carbon Life cycle Stage	Activity	Emission source and impact
Decommissioning (C1)	Deconstruction of the Proposed Development.	GHG emissions associated with demolition, decommissioning and deconstruction activities.
Transport (C2)	Transport of materials from Site to waste processing or disposal centre.	GHG emissions associated with the transport of decommissioned materials from Site.
Waste processing (C3)	Waste processing of waste using techniques such as re-using, recycling or other recovery such as composting or backfill.	GHG emissions associated with the processing of decommissioned materials.
Disposal (C4)	Disposal of waste either through landfilling or incineration.	GHG emissions associated with the disposal of decommissioned materials.

7.7 Design, Mitigation and Enhancement Measures

7.7.1 Design Principles

7.7.1.1 Measures to reduce GHG emissions will be developed in line with the hierarchy set out in the IEMA GHG Management Hierarchy⁷³ as shown in Table 7-6.

Table 7-6: IEMA GHG Management Hierarchy

GHG Management Hierarchy	Examples
Eliminate	- Influence business decisions/use to prevent GHG emissions across the life cycle. - Create opportunities for emissions elimination within the organisation by changing, expanding, rationalising or moving business. - Transition to new business model, alternative operation or new product/ service.
Reduce	- Reduce real and relative (per unit) consumption of carbon and energy. - Improve efficiency in operations, processes, fleet and energy management. - Optimise approaches (e.g. technology) and use digital solutions as enablers.
Substitute	- Adopt renewables/low carbon technologies (e.g. on-site, transport). - Reduce carbon (GHG) intensity of energy use and of energy purchased. - Purchase inputs and services with lower embodied/embedded emissions.
Compensate	- Compensate ‘unavoidable’ residual emissions (e.g. removals, offsets). - Investigate land management, value chain, asset sharing, carbon credits. - Support climate action and developing markets (beyond carbon neutral).

7.7.2 Embedded Measures

7.7.2.1 The Proposed Development is currently evolving through an environmentally led iterative design process (as described in **Section 2: Site Description and the Proposed Development**). At the outset of this design process the Applicant has set out a series of Design Principles (refer to **Section 2.4**) which the Applicant is seeking to achieve as far as reasonably practicable in the design of the Proposed Development.

7.7.2.2 Opportunities to reduce GHG emissions within the design of the Proposed Development will be developed in line with the principles in Table 7-6.

7.7.3 Management Plans

7.7.3.1 A suite of management plans will be developed for the Proposed Development. Outline versions of these management plans will be submitted with the DCO application to secure the commitments contained within. Those considered relevant to the GHG emissions assessment include:

- oCEMP;
- oCTMP;
- oLEMP, including general operational measures alongside those specific to landscape and ecology;
- oDEMP; and
- Outline Materials and Waste Management Plan (oMWMP).

7.8 Likely Significant effects

7.8.1.1 Table 7-7 summarises the potential construction, operation and decommissioning impacts relevant to the GHG assessment proposed to be Scoped In or **Scoped Out** of the EIA.

Table 7-7: GHG emissions assessment scoped in or scoped out of the EIA

Project Work Stage	Life cycle Stage	Description	Scoped in/ out	Justification for scoping in / out of the GHG emissions assessment	Proposed data source
Pre-construction	A0	Preliminary studies, consultation	Scoped Out	GHG emissions from preliminary studies and works are largely office-based and are assumed to be negligible.	N/A
Product Stage	A1-3	Raw material extraction and manufacturing of materials	Scoped In	A1-A3 emissions e.g. from raw material extraction and product manufacturing will be quantified to understand the emissions associated with this stage e.g. the use of steel in the PV stands.	Material quantities from design team e.g. product specification information for the PV cells.
Construction Stage	A4	Transportation of materials to Site	Scoped In	Consumption of energy (electricity; other fuels) from plant, vehicles, generators and worker travel. Fuel consumption from transportation of materials to Site, where these are not included in product-stage embodied emissions. Due to the nature of the equipment, this could require sourcing and shipment of certain components over significant distances.	Assumed transportation distances of material from design team. If this data is not available, it will be based upon a review of transportation distances associated with similar solar farm projects.
	A5	Construction / installation processes	Scoped In	GHG emissions from fuel/ energy/ water consumption of plant, construction practices and ancillary services. GHG emissions from fuel consumption of vehicles used. GHG emissions released from waste disposal method.	Fuel usage during construction, electricity and water usage for Site compounds. Construction staff and estimated commute frequency and distances. Waste quantities and assumed distance to disposal facilities. Likely to be derived from industry and/or academic literature.
	D	Land use change	Scoped In	It is proposed that a qualitative assessment is undertaken to understand potential impact of GHG emissions associated with the change	A qualitative assessment on the type and area of land subject to change in usage

Project Work Stage	Life cycle Stage	Description	Scoped in/ out	Justification for scoping in / out of the GHG emissions assessment	Proposed data source
				of carbon sinks e.g. removal or addition of vegetation associated with the construction of the Proposed Development.	taken from Chapter 9: Ecology Biodiversity of the ES.
Operation	B1	Use	Scoped Out	Non-energy related impacts associated with vegetation sequestration and GHG removals. The use of sulphur hexafluoride (SF ₆) in certain electric components, such as switchgears and transformers, within the substation and the level of fugitive emissions from leakage of this GHG during operation is anticipated to be minor.	N/A
	B2, B3 & B4	Maintenance, Repair & Replacement	Scoped In	GHG emissions from routine maintenance are expected to be negligible, however emissions associated with the replacement of components will be quantified as far as possible.	Typical replacement periods for key materials from design team. Likely to be from academic literature.
	B5	Refurbishment	Scoped In	GHG emissions from planned improvement of the assets as defined at the outset.	N/A
	B6 - B7	Operational energy use & operational water use	Scoped Out	It is anticipated that there will be minimal operational energy use or water use associated with the Proposed Development. This is not considered to be material to this assessment.	N/A
	B8	User's Activities	Scoped Out	Assumed emissions related to commuting of staff during operation of the Proposed Development is likely to be minimal in the context of the wider development.	N/A
Decommissioning / End of Life	C1-C4	End of Life	Scoped In	GHG emissions associated with decommissioning activities undertaken on-site. This is anticipated to be similar to emissions associated with the construction stage e.g. GHG emissions associated with fuel consumption from transportation of workers to Site, plant, vehicles and generators and emissions associated from the	Assumed waste rates using construction details using RICS Whole Life Carbon assessment for the built environment assumptions as it is unlikely that detailed decommissioning information will be available at time of assessment.

Project Work Stage	Life cycle Stage	Description	Scoped in/ out	Justification for scoping in / out of the GHG emissions assessment	Proposed data source
				transportation and disposal of waste. However, emissions from waste disposal are likely to be greater than those from construction waste.	
Benefits and loads beyond the system boundary	D	Land use change and supplementary information beyond the life cycle	Scoped Out	It is proposed that a qualitative assessment is undertaken to understand potential impact of GHG emissions associated with the change of carbon sinks e.g. removal or addition of vegetation associated with the construction of the Proposed Development.	N/A

7.9 Assumptions, Limitations and Uncertainties

- 7.9.1.1 The GHG assessment will be undertaken using available information at time of assessment. A reasonable worst-case assessment will be developed using appropriate industry benchmarks, and conservative assumptions on materials, design, assembly, earthworks and use of components to provide a robust assessment of likely carbon emissions.
- 7.9.1.2 Where benchmarks and conservative assumptions are required, these will be based on:
- emerging design detail;
 - relevant specialist knowledge;
 - manufacturer specifications; or
 - proxy engineering data from previous comparable projects.
- 7.9.1.3 Assumptions will be made about design and construction information to inform the assessment of GHG emissions. In general, any assumptions made will seek to reflect a reasonable worst-case (i.e. seeking not to under-report GHG emissions arising from the Proposed Development). In GHG accounting, it is common practice to consider exclusion of emission sources that are <1% of a given emissions inventory on the basis of a minimal contribution. PAS 2080 allows emissions sources of <1% contribution to be excluded from emission inventories, and these inventories to still be considered complete for verification purposes. Therefore, activities that do not significantly change the result of the assessment can be excluded where expected emissions are less than 1% of total emissions, and where all such exclusions total a maximum of 5% of total emissions.
- 7.9.1.4 The methodology used to calculate the UK carbon budgets is different to that used for the calculation of life cycle emissions for the Proposed Development, and therefore caution must be taken when making a direct comparison. However, for the purposes of identifying the extent to which the Proposed Development may impact the ability of the UK Government to meet its carbon budgets, it is necessary to make this comparison.
- 7.9.1.5 All assumptions and limitations, including any exclusions, together with assumptions for choices and criteria leading to exclusion of input and out data will be documented and provided within the ES.

7.10 Summary

- 7.10.1.1 A summary of those matters proposed to be **Scoped In** and **Scoped Out** of the assessment are set out in Table 7-8 below.

Table 7-8: GHG scoping summary

Aspect	Phase	Scoped In / Out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
GHG emissions	Construction	Scoped In	N/A
	Operation		
	Decommissioning		

8. Cultural Heritage

8.1 Introduction

- 8.1.1.1 This section outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in **Section 2: Site Description and the Proposed Development** in respect of cultural heritage (comprising built heritage, archaeology, and the historic landscape).
- 8.1.1.2 This section sets out the relevant legislation, policy, standards and guidance, study area, baseline conditions, and a high-level assessment of potential impacts on the historic environment.
- 8.1.1.3 This section is supported by the following figures:
- **Figure 8.1: Designated heritage assets;** and
 - **Figure 8.2: Non-designated heritage assets.**

8.2 Study Area and Data Sources

- 8.2.1.1 The study area for designated heritage assets will extend to a distance of 2km from the Solar Development Site and 1km for the Grid Cable Route Search Area.
- 8.2.1.2 For non-designated heritage assets, the study area will extend to 1km for the Solar Development Site and 500m from the Grid Cable Route Search Area.
- 8.2.1.3 The study area has been derived using professional judgement. It is considered to be appropriate for capturing a suitable data set (from the HER) to inform an understanding of the archaeological context and is proportionate to the predicted magnitude of impacts (physical impacts to archaeological remains and impacts to setting designated heritage assets) for the Proposed Development.
- 8.2.1.4 A flexible approach will be taken to the identification of high-value assets on which there may be an impact upon setting, up to 5km beyond the Solar Development Site. Assets beyond this distance may also be considered, where identified as necessary by the technical team or county archaeologist. This will be guided by the Proposed Development's Zone of Theoretical Visibility (ZTV) (see **Section 11: Landscape and Visual Amenity**) but will also consider physical and historical connectivity and relationships with other monuments and the wider landscape.

8.3 Legislation, Planning Policy Context and Guidance

- 8.3.1.1 Legislation relevant to the Proposed Development in regard to cultural heritage is outlined below:
- The Ancient Monuments and Archaeological Areas Act (1979)⁷⁴;
 - The Planning (Listed Buildings and Conservation Areas) Act (1990)⁷⁵;
 - Infrastructure Planning (Decisions) Regulations 2010⁷⁶;
 - Treasure Act 1996⁷⁷;
 - Burial Act 1857⁷⁸;

- Protection of Military Remains Act 1986⁷⁹; and
- Historic Buildings and Ancient Monuments Act 1953⁸⁰.

8.3.1.2 Policies relevant to the Proposed Development in regard to cultural heritage are outlined below. Local planning policies relevant to this topic will be identified in the ES that accompanies the Application.

- Overarching NPS for Energy (EN-1) (2024);
- Draft NPS for Energy (Draft EN-1) (2025);
- NPS for Renewable Energy Infrastructure (EN-3) (2024);
- Draft NPS for Renewable Energy Infrastructure (Draft EN-3) (2025);
- NPS for Electricity Networks Infrastructure (EN-5) (2024);
- Draft NPS for Electricity Networks Infrastructure (Draft EN-5) (2025); and
- National Planning Policy Framework (NPPF).

8.3.1.3 Standards and guidance relevant to the Proposed Development in regard to cultural heritage are outlined below:

- Planning Practice Guidance (PPG): Historic Environment⁸¹;
- Historic England (2015). Managing Significance in Decision Taking in the Historic Environment: Historic Environment Good Practice Advice in Planning Note 2⁸²;
- Historic England (2017). The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3 (Second Edition)⁸³;
- Historic England (2019). Statements of Heritage Significance: Analysing Significance in Heritage Assets. Historic England Advice Note 12⁸⁴;
- Historic England (2008). Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment⁸⁵;
- Historic England (2021). Commercial Renewable Energy Development and the Historic Environment: Historic England Advice Note 15⁸⁶;
- Chartered Institute for Archaeologists (CiFA) (2014). Code of conduct: professional ethics in archaeology⁸⁷;
- CiFA (2014). Standards and guidance for historic environment desk-based assessment⁸⁸;
- Principles of Cultural Heritage Impact Assessment in the UK⁸⁹;
- Highways England (2020). Design Manual for Roads and Bridges (DMRB) LA 104 Environmental assessment and monitoring⁹⁰;
- Highways England (2020). DMRB LA 106 Cultural heritage assessment⁹¹; and
- Archaeology and Construction: good practice guidance (C799D)⁹².

8.4 Assessment Methodology

8.4.1.1 The assessment of potential effects as a result of the Proposed Development on cultural heritage will be undertaken using the methodology set out below.

8.4.1.2 The assessment would be undertaken with due regard to the guidelines on desk-based assessment (DBA) prepared by CiFA, and guidelines on assessing the significance of assets⁸² and assessing the contribution of setting⁸³. The cultural heritage assessment will be supported by a DBA and the results of the geophysical survey (to be presented as an appendix of the ES).

8.4.1.3 In ascribing levels of significance (importance) to heritage assets, the DMRB LA 104⁹⁰

will be used. Whilst the Proposed Development is not a highway project, this guidance is considered best practice within the industry from ascribing levels of significance.

Table 8-1: Establishing the significance (importance) of heritage assets

Value (Sensitivity)	Typical Description
Very High	Very High Importance and Rarity, International Scale and Very Limited Potential for Substitution
High	High Importance and Rarity, National Scale, And Limited Potential for Substitution
Medium	Medium Or High Importance and Rarity, Regional Scale, Limited Potential for Substitution
Low	Low Or Medium Importance and Rarity, Local Scale
Negligible	Very Low Importance and Rarity, Local Scale

8.4.1.4 In respect of identifying the importance of setting to the identified significance of a heritage asset, Historic England's good practice guidance presented in the Setting of Heritage Assets⁸³ will be utilised; specifically, the five-step approach to assessment. The guidance within this Historic England publication will be used alongside the DMRB methodology for assessing the likely significance of heritage assets.

8.4.1.5 The predicted significance of effect will be determined through a standard method of assessment based on professional judgement, considering both the heritage significance of the asset and the magnitude of change.

8.4.1.6 Effects can be beneficial or adverse, and the duration of an effect can be permanent or temporary in nature. Temporary effects generally make reference to indirect effects resulting from construction activities such as plant movement and are limited to the construction and decommissioning phases of the Proposed Development.

8.4.1.7 All effects derived from direct impacts are permanent. Effects which are derived from indirect impacts are long-term, but fully reversible upon decommissioning.

8.4.2 Walkover Survey

8.4.2.1 A walkover survey will be undertaken including a survey of known archaeological and built heritage assets within the Site and the immediate vicinity to record their survival, extent, condition, setting and significance. This visit will also identify elements of historic landscape character that could be affected.

8.4.2.2 A site visit will also be undertaken to the study area to assess the setting of assets which could potentially be affected by the Proposed Development. This visit will establish the key features of the asset's setting, alongside any intervisibility with the Site.

8.4.3 Field Investigation

8.4.3.1 The desk-based research will be supported by a programme of archaeological evaluation surveys. Geophysical surveys are ongoing within the Solar Development Site. Further geophysical surveys will be undertaken within the remaining areas of the Solar Development Site that are suitable for survey and where land access can be obtained by

way of landowner agreement.

- 8.4.3.2 Further archaeological evaluation and setting assessments will be undertaken as part of the EIA process, the scope of which will be informed by the desk-based analysis of information and the outcomes of the geophysical survey. Geophysical surveys of the Solar Development Site in which the solar PV panels and supporting infrastructure, such as inverters, BESS and On-Site Substation(s) would be located commenced in August 2024 and are ongoing. The results will be reported in the ES that accompanies the Application.
- 8.4.3.3 As there remains uncertainty regarding the location of the grid connection, the Grid Cable Route Search Area is not currently included within the geophysical survey remit. The scope of this survey will be determined in consultation with relevant local authority archaeological officer(s).
- 8.4.3.4 A proportionate approach to pre-determination trial trenching across the Solar Development Site would be proposed only where the geophysical survey has identified notable features or areas of high risk of encountering archaeological remains. The results of any trial trenching undertaken will inform the ES. Given the nature of impacts, it is not considered necessary to undertake trial trenching in relation to the Grid Cable Route Search Area. Any further trial trenching required post-consent, prior to construction would be based on these findings and secured as a Requirement of the draft DCO following technical engagement/ formal consultation with relevant local authority archaeological officers.

8.5 Baseline Conditions

8.5.1 Desk-top sources used

- 8.5.1.1 The following desk-top sources have been used to inform the existing baseline conditions of the study area for the assessment of cultural heritage:
- Information on designated heritage assets obtained as a digital data extract from Historic England in February 2024⁹³; and
 - Information on non-designated heritage assets recorded by the HER obtained via email as a digital data extract on the 12 May 2025.

8.5.2 Existing baseline

Solar Development Site

Designated heritage assets

- 8.5.2.1 There are no designated heritage assets within the Solar Development Site although a number of designated heritage assets are located directly adjacent to the Solar Development Site. Designated heritage assets within the study areas for both the Solar Development Site and Grid Cable Route Search Areas are illustrated on **Figure 8.1: Designated heritage assets**.
- 8.5.2.2 There are four conservation areas within the 2km study area of the Solar Development

Site: Tickencote, Great Casterton, Clipsham and Little Casterton & Tolethorpe.

- 8.5.2.3 There are two registered park and gardens within the 2km study area of the Solar Development Site: Exton Park, a Grade II* listed registered park and garden National Heritage List for England (NHLE) [NHLE 1000960] and Grade II listed Holywell Hall Park [NHLE 1444034].
- 8.5.2.4 There are five scheduled monuments within the 2km Solar Development Site study area; these comprise two moated sites; Castle Dyke moated site [NHLE 1019097] and Horn deserted medieval village and moated site [NHLE 1017848]. Woodhead Castle ringwork bailey and fishpond [NHLE 1010923] and Air photography site NE of village and site of Roman town [NHLE 1005067] are also located in the vicinity of the Solar Development Site. Ermine Street, section S of Quarry Farm [NHLE 1005031] is also located within the study area for the Solar Development Site.
- 8.5.2.5 There are approximately 120 listed buildings within the 2km Solar Development Site study area, comprising 2 Grade I, 22 Grade II* and 96 Grade II. Grade I listed buildings within the 2km study area for the Solar Development Site comprise Church of St Peter [NHLE 1115498] 270m west within Tickencote and Church of St Peter and St Paul [NHLE 1073841] 800m south-east within Great Casterton. The Grade II* listed buildings located within the 2km study area include:
- Village Pump [NHLE 1115475];
 - 7 cottages/ houses/large houses including: Cottage, 10 metres West of Tickencote Hall [NHLE 1115515]; Fort Henry Pleasure House and Flanking Retaining Walls and Parapet [NHLE 1073724], Forge Cottage [NHLE 1073845], 22 Main Street [NHLE 1116215]; Gwash Cottage NHLE [1320053]; Gatepiers to the Old Rectory [NHLE 1361503]; and The Old Forge [NHLE 1073223];
 - 3 farmhouses: Ingthorpe Farmhouse [NHLE 1073724], Barn and Stable at Pettywood Farm [NHLE 1360060] and Home Farmhouse [NHLE 1073248], including 5 barns/stables at Holywell Hall [NHLE 1360082, 1062836, 1307637]; and
 - Church of St Wilfred in Grounds of Holwell Hall [NHLE 1360080].
- 8.5.2.6 Grade II listed buildings within the 2km study area include:
- Houses and associated structures;
 - Farmhouses or former farmhouses;
 - Rectory [NHLE 1073840];
 - Lime Kiln [NHLE 1078221];
 - Village Pump [NHLE 1115475];
 - Millhouse [NHLE 1177297];
 - Horn Mill bridge [NHLE 1073934], Holywell Bridge [NHLE 1360083];
 - Churches including Church of St Peter [NHLE 1115498] and Church of All Saints [NHLE 1115634] Church of St Peter and St Paul [NHLE 1073841], Church of Wilfred [NHLE 1360080];
 - Church yards, boundary walls, gateways and arches:
 - Churchyard wall and lychgate [NHLE 1073777];
 - Arch of medieval church [NHLE 1073806]; and
 - Churchyard wall and gateway [NHLE 1361504];
 - The Crown Inn Public House [NHLE 1073838];

- Further buildings and structures associated with large houses:
 - Manor Farmhouse and Outbuilding Range [NHLE 1361766];
 - Orangery, Pigeoncote, barns, fishing temple at Holywell Hall [NHLE 1062833];
 - Range of outbuildings to the north of Peacocks Cottage [NHLE 1361514]; and
 - Cottage adjoining to the west of Home Farmhouse [NHLE 1115519].

Non-designated heritage assets

8.5.2.7 The Leicestershire and Rutland and Lincolnshire County Council HER have been consulted for non-designated heritage assets within the Proposed Development and a wider search area of 1km radius from the Solar Development Site. Non-designated heritage assets are illustrated on **Figure 8.2: Non-designated heritage assets**.

8.5.2.8 There are 199 non-designated heritage assets within the 1km study area for the Solar Development Site including:

- 2 possible Bronze Age ring ditches;
- evidence of Iron age activity;
- evidence of Roman settlement;
- evidence of Anglo-Saxon activity including an Anglo-Saxon Cemetery;
- evidence of medieval settlement;
- evidence of post-medieval activity including 2 watermills;
- World War II airfield sites;
- cottages along Church Lane, Mill Lane, Empingham Lane and within Great Casterton;
- cropmarks, some likely pre-historic;
- undated enclosures;
- farms and farmhouse;
- churches;
- quarries; and
- woodlands.

Grid Cable Route Search Area

8.5.2.9 As noted in **Section 2.1.3: Grid Cable Route Search Area**, three potential route options are currently under consideration: a Northern Grid Cable Route Search Area (approximately 8km in length); a Middle Grid Cable Route Search Area (approximately 11km in length); and a Southern Grid Cable Route Search Area (approximately 13km in length). All assets within the study area for the Grid Cable Route Search Area (1km for designated heritage assets and 500m for non-designated heritage assets) are summarised below. However, not all assets will be impacted. The ES that accompanies the Application will confirm the assets impacted and the resultant effects based upon the final design of the grid connection to the National Grid Substation.

Designated heritage assets

8.5.2.10 There are no designated heritage assets within the Grid Cable Route Search Areas although a number of designated heritage assets are located directly adjacent to the Grid Cable Route Search Areas. Designated heritage assets within the study areas for both the

Solar Development Site and Grid Cable Route Search Areas are illustrated on **Figure 8.1: Designated heritage assets**.

- 8.5.2.11 There are four conservation areas within the 1km study area for the Grid Cable Route Search Areas:
- Little Casterton and Tolethorpe;
 - Ryhall;
 - Great Casterton; and
 - Tickencote.
- 8.5.2.12 There are four registered park and gardens within the 1km study area for the Grid Cable Route Search Areas:
- Grade I listed Grimsthorpe Castle [NHLE 1000978];
 - Grade II* listed Burghley House [NHLE 1000359];
 - Grade II listed Holywell Hall Park [NHLE 1444034]; and
 - Grade II listed Uffington Park [NHLE 1470336].
- 8.5.2.13 There are nine scheduled monuments within the 1km study area for the Grid Cable Route Search Areas; these comprise:
- Castle Bytham Castle, associated town defences and ponds; [NHLE 1014681];
 - Causewayed camp [NHLE 1004938];
 - Air photography site NE of village and site of Roman town [NHLE 1005067];
 - Woodhead Castle ringwork bailey and fishpond [NHLE 1010923];
 - Settlement site E of Uffington and Barnack Station [NHLE 1006792];
 - Castle Dyke moated site [NHLE 1019097];
 - Uffington Bridge [NHLE 1004997];
 - Ruins and site of St Leonard's Priory [NHE 1007690]; and
 - Ermine Street, section S of Quarry Farm [NHLE 1005031].
- 8.5.2.14 There are approximately 209 listed buildings within the 1km study area for the Grid Cable Route Search Areas, the majority of which are densely clustered within the historic cores/ conservation areas of the nearby settlements of Little Casterton and Tolethorpe, Ryhall, Great Casterton and Tickencote. Listed buildings comprise 14 Grade I, 13 Grade II* and 182 Grade II.
- 8.5.2.15 Grade I listed buildings in the 1km study area around the Grid Cable Route Search Areas comprise 12 churches/ features including Church of St Medard [NHLE 1062772]; Church of St Lawrence [NHLE 1360195]; Church of St Michael and All Angels [NHLE 1062590]; and the Church of St Thomas A Becket [NHLE 1317197] as well as others at greater distances within the study area. Other Grade 1 listed buildings include Casewick Hall [NHLE 1165624] and the Remains of St Leonard's Priory [NHLE 1062210].
- 8.5.2.16 Grade II* listed buildings located in the 1km study area for the Grid Cable Route Search Areas include:
- Fishing Temple in Grounds of Holywell Hall [NHLE 1062834];
 - Church of St Wilfred in Grounds of Holywell Hall [NHLE 1360080];
 - Church of All Saints [NHLE 1361524] and Church of St Nicholas [NHLE 1360127];

- Holywell Hall [NHLE 1062833] and Tolethorpe Hall [NHLE1073802] and gate piers/ pigeoncote;
- 3 houses; and
- Bride over River Welland [NHLE 1317255].

8.5.2.17 Grade II listed buildings within the 1km study area for the Grid Cable Route Areas include:

- milestones and mileposts;
- houses or groups of houses within settlements;
- farmhouses or former farmhouses;
- mileposts;
- bridges;
- gate piers and gates;
- telephone kiosks;
- gravestones;
- fountain [NHLE 1062594];
- churches;
- Arch from Medieval Church [NHLE 1073806];
- rectories;
- Village Pump [NHLE 1115475];
- War Memorial [NHLE 1396595];
- Old Post office and Pollys Cottage [NHLE 1062588];
- public houses;
- Old school and school house [NHLE 1165754];
- garden walls; and
- further buildings and structures associated with large houses.

Non-designated heritage assets

8.5.2.18 The Leicestershire and Rutland and Lincolnshire County Council HER have been consulted for non-designated heritage assets within the search area of 500m radius from the Grid Cable Route Search Areas. Non-designated heritage assets are illustrated on **Figure 8.2: Non-designated heritage assets**.

8.5.2.19 There are 576 non-designated heritage assets within the 500m study area surrounding the Site including:

- cropmarks and enclosures, some prehistoric in age;
- evidence of Neolithic activity;
- Bronze age round barrows;
- evidence of Iron-age activity;
- evidence of Roman settlement including Roman villas;
- Anglo-Saxon activity including an Anglo-Saxon cemetery;
- evidence of medieval activity including medieval village earthworks;
- evidence of post-medieval activity;
- Castle Bytham Castle and Surrounding Earthworks;
- designed landscapes including Holywell Hall Park, Uffington House and Park and Casewick Park;
- ring ditches;

- farmsteads, farmhouses and farms;
- barns and stables;
- former schools;
- cottages;
- woodlands; and
- churches.

8.5.3 Future baseline

- 8.5.3.1 The future baseline for cultural heritage and archaeology is expected to remain as the current existing baseline in the absence of the Proposed Development proceeding, as the resource will not be altered or increased. A future baseline would comprise greater records of the wider resource in the surrounding area along with a refined calibration of understanding of the significance of that resource. This is provided that the present agricultural land use were to continue. Normal farming activities would potentially have some continuing attritional influence on any buried remains that may be present as a consequence of regular ploughing in arable fields.
- 8.5.3.2 Further archaeological remains may be discovered through archaeological investigations where other developments are implemented within the study area. Built heritage assets have the potential to change both in terms of setting changes (caused by other developments) or due to decay to their fabric. There also remains the possibility that assets could be designated, although this is difficult to forecast.

8.6 Potential Impacts and Effects

- 8.6.1.1 As outlined in paragraph 8.5.2.9, as optioneering is ongoing for the Grid Connection Cables and three potential route options are currently under consideration within the Grid Cable Route Search Area, not all assets will be impacted. The ES that accompanies the Application will confirm the assets impacted and the resultant effects based upon the final design of the Grid Connection Cables to the National Grid Substation.

8.6.2 Construction

- 8.6.2.1 Construction of the Proposed Development, including activities such as the insertion of piled foundations, excavation of cable trenches, works associated with and installation of supporting infrastructure (inverters, substations and compounds) could directly impact on below ground archaeological remains within the Site depending on the final layout. Depending on the sensitivity of the archaeological remains affected these effects could be significant.
- 8.6.2.2 Construction activity could adversely affect the significance of heritage assets beyond the Site if it alters the contribution that setting makes to the heritage significance of these assets. Given the short-term nature of construction phase changes within the setting of heritage assets, these effects are unlikely to be significant. No direct effects on heritage assets beyond the Site are predicted during construction.

8.6.3 Operation

- 8.6.3.1 Significant operational phase effects could occur where the contribution that the setting of heritage assets makes to their heritage significance is adversely affected by the presence of the Proposed Development. Such effects could occur only where the presence of new above ground infrastructure results in changes to the visibility of heritage assets or changes to the historic landscape and/or setting of heritage assets. As such impacts are relevant only in relation to new above ground infrastructure, the geographical scope is limited to the Solar Development Site and impacts during operation of the Proposed Development relating to the Grid Connection Cables are **Scoped Out**.
- 8.6.3.2 No impacts are likely from the Proposed Development to buried archaeological remains during the operational phase, including during replacement of panels, as described in **Section 2.6: Operational Activities**, as impacts would occur during construction.

8.6.4 Decommissioning

- 8.6.4.1 As described in **Section 2.7: Decommissioning**, at the end of the 60-year operational lifespan of the Proposed Development, the PV modules and associated infrastructure including the On-Site substation will be removed to decommission the Proposed Development, noting Grid Connection Cables may be left in-situ. It is anticipated that no further adverse indirect impacts to the significance of designated heritage assets would result from the restoration works to the Solar Development Site, assuming the land is returned to its former use (excluding vegetation planted for landscaping and ecological purposes which would be left in-situ on handback of land to landowners following decommissioning (with the exception of grassland planted under the Panel Areas)) and given the short time period for works described in **Section 2.7: Decommissioning** i.e. approximately 24 months.
- 8.6.4.2 No direct impacts to the potential archaeological resource are anticipated to result from the decommissioning phase, impacts having resulted as part of the construction phase.
- 8.6.4.3 This is predicated upon:
- the assumption that no further land take will be required for decommissioning, and therefore no additional physical disturbance can be caused to any heritage assets through intrusive works; and
 - the understanding that decommissioning will remove all elements of the Proposed Development within the Solar Development Site (described in **Section 2.7: Decommissioning**) and thus return the landscape to be similar to its previous state (as it is now) therefore removing any ongoing impact on heritage assets through a change in setting. Any exceptions will be assessed as permanent operational effects.
- 8.6.4.4 No indirect effects are predicted to heritage assets beyond the Site during decommissioning.

8.7 Design, Mitigation and Enhancement Measures

8.7.1 Embedded Measures

- 8.7.1.1 The Proposed Development is currently evolving through an environmentally led iterative design process (as described in **Section 2: Site Description and the Proposed Development**). At the outset of this design process, the Applicant has set out a series of Design Principles (refer to **Section 2.4: Environmental Design**) which they are seeking to achieve, as far as reasonably practicable, in the design of the Proposed Development.
- 8.7.1.2 Embedded measures can comprise modifications to the design of a scheme made during the pre-application phase that seek to avoid or minimise impacts, that are an inherent part of the design and do not require additional action to be taken. Therefore, embedded measures may comprise, or be informed by, the Design Principles as well as other mitigation measures.
- 8.7.1.3 Embedded measures relevant to cultural heritage and archaeology are likely to include:
- Avoidance of physical disturbance to known heritage assets through design, including appropriate stand offs between heritage assets and the construction and relocation and/ or minimisation of module mounting structures, foundations and underground cables within areas known to include archaeological remains (i.e. preservation in situ).
 - If below ground archaeology constraints arise through further field investigation, the mounting structure of solar panels will avoid impacts to these through alterations to the layout (where remains of high importance are identified) or will utilise options such as ballast slabs, anchor, or block which sit on the ground surface.
 - Existing hedgerows in poor condition/ gappy will be reinforced with planting/ management where feasible where this does not adversely affect the setting of heritage assets.
 - The Proposed Development would generally not be lit. Use of artificial lighting would be limited to where it is required for security purposes e.g. around electrical infrastructure and potentially at other pieces of critical infrastructure. It is anticipated that the lighting will be controlled via infrared motion sensor controls and so the Solar Development Site will not be lit at night. All lighting will be designed and installed in a manner which minimises impact.
 - Retention of field boundaries and enhancement of hedgerow boundaries to maximise landscape integration where appropriate.
 - Development of an environmental masterplan incorporating screening mitigation and filter planting.
 - Visible structures such as On-Site Substation(s), fencing, BESS, inverters will be blended into the landscape through the careful selection of colours and/ or cladding.
 - Appropriate buffer will be maintained between heritage assets and the construction works.
- 8.7.1.4 The measures confirmed as part of the EIA process, will be described in the outline management plans and their implementation secured by a requirement of the draft DCO.

8.7.2 Management plans

8.7.2.1 A suite of management plans will be in place for the Proposed Development. Outline versions of these management plans will incorporate standard industry best practice, considered as embedded measures, as well as any further mitigation that is deemed required as a result of the EIA process. These will be submitted with the Application to secure the commitments contained within.

8.7.2.2 Those relevant to cultural heritage and archaeology include:

- Archaeological Mitigation Strategy (including Outline Written Scheme of Investigation for archaeology (oWSI));
- oCEMP;
- oOEMP;
- oLEMP, including general operational measures alongside those specific to landscape and ecology; and
- oDEMP.

8.7.3 Further mitigation

8.7.3.1 Further mitigation is defined as actions that require further activity in order to achieve a reduction in significance of adverse effects, and/ or anticipated outcomes. Further mitigation for cultural heritage and archaeology will be defined through the EIA process once the level of significance of effects is known and will be reported in the ES. Options for further mitigation for the Proposed Development relevant to cultural heritage and archaeology may include:

- Use of non-intrusive construction methods to protect below ground archaeological remains of high importance (preservation in situ).
- Targeted set-piece archaeological excavation in advance of construction for archaeological remains that do not merit preservation in situ but would be significantly adversely affected by construction activities.
- Archaeological monitoring and recording of any archaeological remains during construction.

8.8 Likely Significant Effects

8.8.1 Construction

8.8.1.1 No direct effects to heritage assets outside the Site are predicted during the construction phase. Indirect effects to heritage assets outside the Site may occur as a result of temporary changes within their setting as a result of, for example visual intrusion or noise etc. during construction, but significant effects are unlikely due to the short-term nature of these changes which cease once construction activities are complete. These effects are therefore **Scoped Out** of further assessment.

8.8.1.2 Potential direct and indirect impacts to designated and non-designated heritage assets within the Site would be Scoped In for further assessment due to the potential for the Proposed Development to give rise to potentially significant effects during construction.

8.8.1.3 The design of the Proposed Development will take account of the designated and non-

designated heritage assets within the Site and surrounding study area to ensure that their heritage significance is conserved proportionally, along with information on any further archaeological remains. In addition, the oWSI will include measures to ensure the preservation of these assets proportionate to their significance.

- 8.8.1.4 A full DBA, geophysical survey of areas where solar PV modules and associated infrastructure are proposed, and a proportionate intrusive field evaluation will be undertaken to identify, confirm, and assess the potential direct impacts to known and potential archaeological remains and to confirm/ assess the potential indirect impacts to designated and non-designated heritage assets from the Proposed Development.

8.8.2 Operation

- 8.8.2.1 Visibility of PV modules during the operational phase of the Proposed Development has the potential to indirectly, adversely affect the contribution that setting makes to the heritage significance of heritage assets, where this contribution:
- includes designed views from the asset over the surrounding landscape;
 - derives from views of the asset from the surrounding landscape (which may be obscured by the Proposed Development); and
 - draws on the current agricultural use of the land within the Site (which would be visually altered by the Proposed Development).
- 8.8.2.2 Potential indirect impacts during the operational phase from the above ground components of the Proposed Development located within the Solar Development Site on designated heritage assets will be **Scoped In** for further assessment. As described in paragraph 8.6.3.1, as the cables for the grid connection will be below ground, there is no pathway for impacts on designated heritage assets beyond the construction phase and impacts during operation of the Proposed Development relating to the grid connection cables are **Scoped Out**.
- 8.8.2.3 Potential indirect impacts from the operational phase of the Proposed Development on non-designated heritage assets will be **Scoped Out** (both for the Solar Development Site and Grid Connection Cables) on the basis that significant effects are unlikely to occur given the low importance of the assets and the degree of harm to significance that could occur through changes in setting alone.
- 8.8.2.4 A Setting Assessment in accordance with Historic England guidance will be prepared to identify those assets where significant effects may occur depending on the final design of the Proposed Development in order to refine the scope of the EIA. The Setting Assessment will form an appendix to the ES.
- 8.8.2.5 An assessment of direct impacts to buried archaeological remains during operation is **Scoped Out** of further assessment as the impacts would occur during construction (with no additional impacts considered likely during replacement activities in the operation phase) or impacts would otherwise be avoided through the implementation of measures set out in **Section 8.7: Design, Mitigation and Enhancement Measures**.

8.8.3 Decommissioning

- 8.8.3.1 It is anticipated that all impacts to below ground heritage assets (archaeological remains)

within the Site will have occurred and been mitigated for during the construction phase (direct) and operation phase (indirect). Any additional potential impacts to either below ground heritage assets (archaeological remains) within the Site or to heritage assets in the surrounding area would be avoided through implementation of measures in an oDEMP. These effects are therefore **Scoped Out**.

8.9 Assumptions, Limitations and Uncertainties

- 8.9.1.1 The baseline assessment has been based on information readily available at the time of undertaking the assessment and relies on the accuracy of secondary source data.
- 8.9.1.2 It is assumed that there will be access to all required land to undertake both intrusive and non-intrusive archaeological surveys and evaluation, and that the results will be available to incorporate within the ES. In the event that access is not available, professional judgement will be used, based on available research and data, to assess the archaeological potential of the area.

8.10 Summary

- 8.10.1.1 A summary of those matters proposed to be Scoped In and **Out** of the assessment are set out in Table 8-2 below.

Table 8-2: Cultural Heritage Scoped In and Out of EIA

Aspect	Scope of surveys	Phase	Scoped in / out	Justification for scoping out aspects
Designated built heritage assets and conservation areas (scheduled monuments, listed buildings and registered park and gardens of all grades, and conservation areas)	Cultural heritage walkover survey and settings assessment site visits. Targeted cultural heritage site visit and survey.	Construction	Scoped In (Solar Development Site and Grid Cable Route Search Area)	N/A
		Operation	Scoped In (Solar Development Site) Scoped Out (Grid Cable Route Search Area)	N/A As the grid connection cables will be below ground, there is no pathway for impacts on the setting of designated heritage assets beyond the construction phase.
		Decommissioning	Scoped Out	As stated in Section 8.8: Likely Significant Effects , it is unlikely that decommissioning would result in the generation of additional significant effects to those resulting from construction and operation. While decommissioning of the Proposed Development in the Solar Development Site would result in change(s) to the setting of designated heritage assets and conservation areas through removal of all above ground equipment and infrastructure, the magnitude of impact resulting from this is unlikely to result in significant

Aspect	Scope of surveys	Phase	Scoped in / out	Justification for scoping out aspects
				effect(s) to the cultural significance (value) of any affected assets.
Non-designated built heritage assets (Non-designated built heritage assets, locally listed buildings and locally listed park and gardens)	Cultural heritage walkover survey and settings assessment site visits. Targeted cultural heritage site visit and survey.	Construction	Scoped In (Solar Development Site and Grid Cable Route Search Area)	N/A
		Operation	Scoped Out (Solar Development Site and Grid Cable Route Search Area)	As stated in Section 8.8: Likely Significant Effects , it is unlikely that operation would result in significant effects to non-designated built heritage assets. This is because any physical impact(s) will have occurred during construction and as non-designated built heritage assets have a lower sensitivity to change(s) in setting where this contributes to cultural significance (value), changes to setting resulting from operation, routine inspections and maintenance and periods of component replacement are unlikely to result in significant effect(s) to cultural significance (value).
		Decommissioning	Scoped Out	As stated in Section 8.8: Likely Significant Effects , any physical impact(s) will have occurred during construction and, as non-designated built heritage assets have a lower sensitivity to change(s) in setting where this contributes to cultural significance (value) the removal of all above ground equipment and infrastructure, and restoration of land within the Solar Development Site rather than replacement with a different scheme is unlikely to result in significant effect(s) to the cultural significance (value) of affected assets. Therefore, it is unlikely that decommissioning would result in the generation of additional significant effects to those resulting from construction and operation.
Archaeological heritage assets (Designated and non-designated sites, monuments, features and other remains)	Cultural heritage walkover survey and settings assessment site visits. Targeted cultural heritage site	Construction	Scoped In (Solar Development Site and Grid Connection Cables)	N/A
		Operation	Scoped Out	Normal operations and periods of component replacement are unlikely to result in significant effects to archaeological heritage assets left in situ following construction of the

Aspect	Scope of surveys	Phase	Scoped in / out	Justification for scoping out aspects
	visit and survey. Archaeological Evaluation a) geophysical survey of Solar Development Site and off-road cable routes for grid connection cables where agreed with local authority archaeological officers. b) Trial trenching pre-determination within the Solar Development Site where the geophysical survey has identified notable features or areas of high risk of encountering archaeological remains, as agreed with local authority archaeological officers).			Proposed Development within the Solar Development Site and the Grid Cable Route Search Area. This is because any impact(s) would be associated with construction, and it is assumed that component replacement is unlikely to require excavation or other below ground works that would result in new/ additional impacts to those that have occurred during construction.
		Decommissioning	Scoped Out	As stated in Section 8.8: Likely Significant Effects , it is assumed that no or minimal additional impacts would occur to below ground archaeological heritage assets left in situ during the decommissioning process. It is therefore unlikely that decommissioning would result in significant effect(s) to the cultural significance (value) of archaeological heritage assets. Therefore, it is unlikely that decommissioning would result in the generation of additional significant effects to those resulting from construction and operation.
Unrecorded archaeology (In situ features, remains, and/ or deposits. This could include paleoenvironmental deposits)	Cultural heritage walkover survey and site visits Geophysical (magnetometry) survey Archaeological Evaluation (trial trenching)	Construction	Scoped In (Solar Development Site and Grid Connection Cables)	N/A
		Operation	Scoped Out	As stated in Section 8.8: Likely Significant Effects , normal operations and periods of component replacement are unlikely to result in significant effects to unrecorded archaeology left in situ following construction of the Proposed Development. This is because any impact(s) would be associated with construction, and it is assumed that component replacement is unlikely to require excavation or other below ground works.
		Decommissioning	Scoped Out	It is assumed that any surviving unrecorded archaeology located within the Solar Development Site

Aspect	Scope of surveys	Phase	Scoped in / out	Justification for scoping out aspects
				and the selected cable route which was not impacted during construction would not be affected during decommissioning. It is therefore unlikely that decommissioning would result in significant effect(s) to the cultural significance (value) of unrecorded archaeology. Therefore, it is unlikely that decommissioning would result in the generation of additional significant effects to those resulting from construction and operation of the Proposed Development.
Historic Landscape Character	Walkover survey and desk based assessment.	Construction	Scoped Out	As stated in Section 8.8: Likely Significant Effects , there may be temporary changes as a result of, e.g. visual intrusion or noise etc. during construction, but significant effects are unlikely due to the short-term and reversible nature of these changes once construction activities cease.
		Operation	Scoped in (Solar Development Site) Scoped Out (Grid Cable Route Search Area)	N/A As the grid connection cables will be below ground, there is no pathway for impacts on historic landscape character beyond the construction phase.
		Decommissioning	Scoped Out	As stated in Section 8.8: Likely Significant Effects , the removal of all above ground equipment and infrastructure, and restoration of land within the Solar Development Site rather than replacement with a different scheme is unlikely to result in significant effect(s) Therefore, it is unlikely that decommissioning would result in the generation of additional significant effects to those resulting from construction and operation.

9. Ecology and Biodiversity

9.1 Introduction

- 9.1.1.1 This section outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in **Section 2: Site Description and the Proposed Development**, in respect of ecology and biodiversity.
- 9.1.1.2 This section sets out the relevant legislation, policy, standards and guidance, study area, baseline conditions, and a high-level assessment of the potential impacts in relation to:
- internationally, nationally and locally designated sites;
 - priority and non-priority habitats; and
 - protected and notable species.
- 9.1.1.3 This section should be read in conjunction with, and is informed by, **Appendix B: Preliminary Ecological Appraisal (PEA)**, noting that this is a ‘point in time’ appraisal. The land within the Solar Development Site has changed throughout the period in which the PEA was drafted, with some land being added and some land being removed. The version of the PEA including in this EIA Scoping Report primarily focuses on land that is situated within the Solar Development Site which has been subject to field study and desk survey.
- 9.1.1.4 This section is supported by the following figures:
- **Figure 9.1: Statutory Designated Ecological Sites;**
 - **Figure 9.2: Non-Statutory Designated Ecological Sites;** and
 - **Figure 9.3: Local Wildlife Sites within 2km of Solar Development Site.**

9.2 Study Area and Data Sources

9.2.1 Study Area

- 9.2.1.1 The study area to inform the PEA and this section includes the Solar Development Site and the following areas:
- international nature conservation sites (Ramsar, SPA, SAC) within 10km of the Site;
 - national statutory designated sites (e.g. SSSI) within 2.5km of the Site;
 - locally important statutory designated sites (e.g. Local Nature Reserves (LNR)) within 2.5km of the Site; and
 - non-statutory nature designations (e.g. Local Wildlife Sites (LWS)) and protected and notable species record within 2km of the Solar Development Site.

9.2.2 Desk Study

- 9.2.2.1 The methodology for the PEA desk study is described in **Appendix B: Preliminary Ecological Appraisal** (refer to **Section 3.2: Desk study**). This identified records of statutory and non-statutory designated sites, priority and notable habitats and protected and notable species within the 2km study area.

- 9.2.2.2 Biological records centre data obtained and presented relate only to the Solar Development Site at a point in time and does not cover all areas of the Site.
- 9.2.2.3 The PEA (and the study area for Chapter 9: Ecology and Biodiversity of the ES) will be updated as the design of the Proposed Development progresses to include a detailed desk study and field survey of all land required for the Proposed Development (i.e. final Solar Development Site and refined routing for the grid connection) and this will accompany the ES.
- 9.2.2.4 Further information is set out in **Section 9.4: Assessment Methodology**.

9.2.3 Desk-top sources used

- 9.2.3.1 The following information sources were used to inform the PEA desk study:
- MAGiC platform¹⁸ - internationally designated statutory sites (SPA, SAC and Ramsar sites) and nationally designated statutory sites (SSSI, LNR), National Nature Reserves (NNR) and Habitats of Principal Importance (HPI);
 - side by side georeferenced maps viewer⁹⁴ - comparison of historic and current maps in side-by-side viewer;
 - Ancient Woodland Inventory (AWI)⁹⁵ - ancient woodland sites and their historic land use (semi-natural, replanted);
 - Ancient Tree Inventory (ATI)⁹⁶ - mapped ancient, veteran and notable trees;
 - Priority Rivers Map⁹⁷ - priority river sites in England; and
 - National Biodiversity Network (NBN) Atlas⁹⁸ - supplementary species information.
- 9.2.3.2 Information regarding non-statutory designated nature conservation sites e.g. LWS, as well as relevant protected and/ or notable species records for the defined search area, were obtained from the Leicestershire and Rutland Environmental Records Centre (LRERC)¹⁰ and provided to the Applicant in December 2024. Records older than 10 years are broadly considered to be of limited relevance and are not summarised in this report, unless otherwise stated; professional judgement has been used to identify where records older than 10 years are likely to still be of relevance.

9.2.4 Field Survey

- 9.2.4.1 The methodology for the PEA field survey is described in **Appendix B: Preliminary Ecological Appraisal** (refer to **Section 3.3: Field survey**). The PEA field survey to date has been limited to the Solar Development Site only.
- 9.2.4.2 Due to changes in land area that comprises the Solar Development Site, the current land area has been surveyed on three separate occasions. Please refer to **Section 3.3: Field Survey** of **Appendix B: Preliminary Ecological Appraisal** for further details.

¹⁰ Leicestershire and Rutland Environmental Records Centre. Available at <https://www.leicestershire.gov.uk/environment-and-planning/planning/leicestershire-and-rutland-environmental-records-centre-lrerc> (Accessed: 04/12/2024)

9.3 Legislation, Planning Policy Context and Guidance

9.3.1 Legislation

9.3.1.1 Legislation relevant to the Proposed Development in regard to ecology and biodiversity is outlined below:

- The Environment Act 2021²²;
- The Wildlife and Countryside Act 1981 (as amended)⁹⁹;
- The Conservation of Habitats and Species Regulations 2017¹⁰⁰ (as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations, 2019)¹⁰¹;
- The Countryside and Rights of Way Act 2000¹⁰²;
- The Natural Environment and Rural Communities Act (NERC) 2000¹⁰³;
- The Hedgerows Regulations 1997¹⁰⁴;
- The Protection of Badgers Act 1992¹⁰⁵; and
- Invasive Alien Species (Enforcement and Permitting) Order (2019)¹⁰⁶.

9.3.2 Planning Policy

9.3.2.1 Policies relevant to the Proposed Development in regard to ecology and biodiversity is outlined below. Local planning policies relevant to this topic will be identified in the ES that accompanies the Application.

- Overarching NPS for Energy (EN-1) (2024);
- Draft NPS for Energy (EN-1) (2025);
- NPS for Renewable Energy Infrastructure (EN-3) (2024);
- Draft NPS for Renewable Energy Infrastructure (EN-3) (2025);
- NPS for Electricity Networks Infrastructure (EN-5) (2024);
- Draft NPS for Electricity Networks Infrastructure (EN-5) (2025); and
- NPPF.

9.3.3 Guidance and Other Standards

9.3.3.1 Standards and guidance relevant to the Proposed Development with regards to ecology and biodiversity is outlined below:

- Guidelines for Preliminary Ecological Appraisal, 2nd ed. Chartered Institute of Ecology and Environmental Management (CIEEM) 2017¹⁰⁷;
- Guidelines for Ecological Impact Assessment in the UK and Ireland CIEEM, 2016¹⁰⁸;
- Habitats Regulations Assessments: Protecting a European site (2021)¹⁰⁹;
- Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments (2024)¹¹⁰;
- A guide to the assessment of air quality impacts on designated nature conservation sites (2019)¹¹¹;
- Advisory Note: Ecological Assessment of Air Quality Impacts (2023)¹¹²;
- The Statutory Biodiversity Metric User Guide (2024)¹¹³;
- Great Crested Newt Mitigation Guidelines (2001)¹¹⁴;
- Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*) (2000)¹¹⁵;

- ARG UK Advice Note 5, Great Crested Newt Habitat Suitability (2010)¹¹⁶;
- SureScreen Scientifics GCN eDNA testing¹¹⁷;
- Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA¹¹⁸;
- Surveying Badgers (1989)¹¹⁹;
- The history, distribution, status and habitat requirements of the badger in Britain (1990)¹²⁰;
- Badgers: surveys and mitigation for development projects, Natural England standing advice (2022)¹²¹;
- The Classification of Badger (*Meles meles*) Setts in the UK: A Review and Guidance for Surveyors. (2013)¹²²;
- UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats (2023)¹²³;
- 3rd Edition Bat Workers' Manual (2004)¹²⁴;
- Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition) (2023)¹²⁵;
- Bat Roosts in Trees: a guide for identification and assessment for tree-care and ecology professionals (2018)¹²⁶;
- 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 (2021)¹²⁷;
- Bird census techniques (2000)¹²⁸;
- Gilbert, G., Gibbons, D.W., & Evans, J. (1998) Bird Monitoring Methods: A Manual of Techniques for UK Key Species. The Royal Society for the protection of Birds, Sandy, Bedfordshire, England¹²⁹;
- Bird Survey Guidelines for assessing ecological impacts (2023)¹³⁰;
- Otters: advice for making planning decisions¹³¹;
- Monitoring the Otter *Lutra*. Conserving Natura 2000 Rivers Monitoring Series No. 10, (2003)¹³²;
- Non-intrusive monitoring of otters (*Lutra lutra*) using infrared technology¹³³;
- Froglife (1999) Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice sheet 10. Froglife, Halesworth¹³⁴;
- Reptiles: advice for making planning decisions (2022)¹³⁵;
- The Water Vole Mitigation Handbook (Mammal Society Mitigation Guidance Series) (2016)¹³⁶;
- Water Vole Field Signs and Habitat Assessment A Practical Guide to Water Vole Surveys (2021)¹³⁷; and
- Strachan, R., Moorhouse, T. and Gelling, M. (2011) Water Vole Conservation Handbook. Third Edition. Wildlife Conservation Research Unit, Oxford¹³⁸.

Planning Inspectorate Technical Advice Page for Scoping Solar Development (2024) – Solar Scoping Table

9.3.3.2 The Planning Inspectorate provides non-statutory guidance on the scope of NSIP solar projects. The guidance recommends that information is included on ecological receptors and the anticipated impacts. This is discussed further within **Section 9.5: Baseline Conditions** and **Section 9.6: Potential Impacts and Effects** below. Receptors are illustrated on **Figure 9.1: Statutory Designated Ecological Sites**, **Figure 9.2: Non-**

Statutory Designated Ecological Sites and Figure 9.3: Local Wildlife Sites within 2km of Solar Development Site.

- 9.3.3.3 Regarding invasive non-native species (INNS), the guidance provides examples of the types of evidence/assumptions to be provided in the EIA scoping request as follows:
- risk analysis as to whether INNS species are likely to be present;
 - anticipated components and activities of the Proposed Development across all phases which could result in the introduction and, or spread of invasive species, such as translocation via vehicle movements, water, vegetation management; and
 - summary of site surveys or provision of preliminary ecological appraisal, phase one habitat surveys or individual habitat or species surveys.
- 9.3.3.4 The guidance also provides examples of the types of proposed mitigation to be summarised in the commitments register:
- outline of standard measures to identify and control invasive species and how these will be secure, such as through an invasive species management plan.
- 9.3.3.5 Regarding species or habitats, the guidance provides examples of the types of evidence/assumptions to be provided in the EIA scoping request as follows:
- a preliminary ecological appraisal and/ or phase one habitat survey completed within the two years prior to submission of the scoping request;
 - identification, location, importance and sensitivity of species/habitats within a study area with reference to relevant guidance to define sensitivity of species/habitats on-site/ potential to be on-site; and
 - evidence of absence of suitable supporting habitat for a particular species.
- 9.3.3.6 The guidance also provides examples of the types of proposed mitigation to be summarised in the commitments register:
- commitment to any anticipated follow up surveys required;
 - appropriate buffers/ construction management measures; and
 - any proposed strategic level licencing processes that will be relied upon, for example district level licencing for great crested newts.
- 9.3.3.7 Evidence and assumptions provided in this section:
- Evidence relied upon in scoping out aspects of the assessment are provided within **Section 9.7: Design, Mitigation and Enhancement Measures** and **Section 9.8: Likely Significant Effects**. Associated assumptions are listed in one location within **Section 9.10: Summary**. A PEA accompanies this EIA Scoping Report as **Appendix B: Preliminary Ecology Appraisal**, providing a description of the survey results to date and the scope of the planned further surveys.
 - **Section 9.7: Design, Mitigation and Enhancement Measures** provides further details of the proposed mitigation measures taking into account the above examples, as may be relevant.

9.4 Assessment Methodology

9.4.1 Preliminary Ecological Appraisal

- 9.4.1.1 As noted in **Section 9.2: Study Area and Data Sources**, the main focus of preliminary

appraisal to date has been the Solar Development Site and this is reflected in the PEA, which includes a desk study followed by a field survey for the Solar Development Site. The PEA field survey has included a habitat mapping and protected/ notable scoping assessment for all land within the Solar Development Site. Habitats were classified using the UK Habitats Classification (UKHab) methodology. Additionally, wintering bird surveys were undertaken between November 2024 and March 2025.

- 9.4.1.2 A protected species survey programme commenced in April 2025 and is currently ongoing. The requirement and extent of these surveys has been informed by the findings of desk study and field survey set out in **Appendix B: Preliminary Ecology Appraisal** together with professional judgement and local knowledge of the geographical area and range of important ecological features. The proposed approach is to complete one full survey season for all identified species of relevance.

9.4.2 Overview of Approach

- 9.4.2.1 The assessment will be based on the Guidelines for Ecological Impact Assessment in the UK and Ireland produced by the CIEEM¹³⁹ ('the CIEEM EcIA guidance'). The assessment will contain a description of the baseline conditions, following completion of surveys and collection of desk study data. Comments and feedback from statutory bodies and interested parties will be reviewed and considered in the assessment. The assessment will document the valued features including habitats, species and conservation sites within the study area of the Proposed Development and will include an assessment of the ecological value of these within the context of the Site.
- 9.4.2.2 Potential effects resulting from the construction, operation and decommissioning of the Proposed Development will be assessed and reported including any likely significant effects for the integrity and conservation status of all relevant, valued ecological features.
- 9.4.2.3 When considering potentially significant effects on ecological features, whether adverse or beneficial, the following characteristics of environmental change are taken into account:
- extent – the spatial or geographical area over which the environmental change may occur;
 - magnitude – the size, amount, intensity or volume of the environmental change;
 - duration – the length of time over which the environmental change may occur;
 - frequency – the number of times the environmental change may occur;
 - timing – the periods of the day/year etc. during which an environmental change may occur; and
 - reversibility – whether the environmental change can be reversed through restoration actions.
- 9.4.2.4 The CIEEM EcIA guidance also stress consideration of the likelihood that 'a change/ activity will occur and also the degree of confidence in the assessment of the impact on ecological structure and function'. Likelihood is then specified using the following terms:
- certain (95% probability or higher);
 - probable (50-94% probability);
 - unlikely (5-49% probability); or

- extremely unlikely (less than 5% probability).

9.4.2.5 The assessment of potential impacts will be undertaken with the inclusion of embedded mitigation for the Proposed Development. Residual impacts will consider any additional mitigation measures required. An assessment will be made of the likely significance of residual effects, i.e. the significance of effects that are predicted to remain after the implementation of all committed mitigation measures.

9.4.3 Valuing Ecological Receptors

9.4.3.1 Where protected species are present and there is the potential for a breach of the legislation, those species should always be considered as ‘important’ features. With the exception of such species receiving specific legal protection or those subject to legal control (e.g. INNS), all ecological features that are determined to be important at negligible level would be **Scoped Out** of the assessment at the ES stage. Further, ecological features of local importance, where there is a specific technical justification, will be **Scoped Out** in the ES. This is because a significant effect in EIA terms could not occur and would not influence decision-making about whether or not consent should be granted for the Proposed Development. This approach is consistent with that described in the CIEEM EcIA guidance.

9.4.3.2 Where part of a designated site is located within the ecological study area relating to a particular impact as a result of the Proposed Development, an assessment will be made of the likely effects on the designated site as a whole. A similar approach will be taken for areas of notable habitat.

9.4.3.3 For the fauna species that are present within the study area, the assessment will consider the total area that is used by the affected individuals and/ or the local population of the species (e.g. for foraging or as breeding territories).

9.4.3.4 As the importance of ecological features is determined with regard to the extent of habitat or size of population that may be affected by the Proposed Development, each status can differ from that which would be conferred by legislative protection or identification as a conservation notable species. For example, house sparrow is important at a national level because it is a Species of Principal Importance (SPI) and features on the Birds of Conservation Concern (BoCC) Red List. However, a small population that could be affected by a development would be assessed as being of less than national importance due to the large, albeit declining, national population (in excess of 5 million pairs). Similarly, a small length of hedgerow, even if deemed to be ‘important’ with regard to the Hedgerow Regulations¹⁰⁴, may be considered to be of less than national importance due to the extent of this habitat type across a given county.

9.4.3.5 Wherever possible, information regarding the extent and population size, population trends and distribution of the ecological features will be used, to inform the categorisation described in Table 9-1 to determine importance at the project level. Where detailed criteria or contextual data is not available, professional judgement will be used to determine importance.

Table 9-1: Importance of impact of ecological features as a result of the Proposed Development

Geological context of importance	Criteria Example / Description
International or European	1. European sites including SPA, SAC, candidate SAC and Sites of Community Importance (SCI). Potential SPA (pSPA), possible SAC (pSAC), Ramsar sites (designated under international convention) and proposed Ramsar sites should also be considered in the same manner in accordance with national planning policy. 2. Areas of habitat or populations of species which meet the published selection criteria based on discussions with Natural England and field data collected to inform the assessment for designation as a European site or Ramsar site, but which are not themselves currently designated at this level.
National	1. A nationally designated site including SSSI and NNR. 2. Areas (and the populations of species which inhabit them) which meet the published selection criteria guidelines for selection of biological SSSI, but which are not themselves designated based on field data collected to inform the assessment, and in agreement with Natural England. 3. HPI and SPI, Red-listed and legally protected species that are not addressed directly in Part 2 of the Guidelines for Selection of Biological SSSI¹⁴⁰ but can be determined to be of national importance using the principles described in Part 1 of the guidance. 4. Areas of Ancient Woodland e.g. woodland listed within the AWI and ancient and veteran trees.
Regional	1. Regularly occurring HPI and populations of SPI, Red-listed and legally protected species may be of regional importance in the context of published information on population size and distribution.
County	1. LNR and Non-Statutory Designated sites - LWS designated in the county/ metropolitan context. 2. Areas which based on field data collected to inform the EcIA meet the published selection criteria for those sites listed above (for habitats or species, including those listed in relevant Local Biodiversity Action Plans (BAP) but which are not themselves designated.
Local	1. HPI and SPI, Red-listed and legally protected species that based on their extent, population size, quality etc are determined to be at a lesser level of importance than the geographic contexts above. 2. Common and widespread semi-natural habitats occurring within the study area in proportions greater than may be expected in the local context. 3. Common and widespread native species occurring within the relevant study area in numbers greater than may be expected in the local context.
Negligible	1. Common and widespread semi-natural habitats and species that do not occur in levels elevated above those of the surrounding area. 2. Areas of heavily modified or managed land uses (e.g. hard standing used for car parking, as roads etc.).

9.4.4 Magnitude of Change

9.4.4.1 The scale for the magnitude of the environmental change (i.e. impact) as a result of the Proposed Development is described within Table 9-2 and will be used to provide an evaluation of the likely change from the baseline conditions.

Table 9-2: Magnitude of Change

Scale of Change	Criteria and resultant effect
High	The change permanently (or over the long-term) affects the conservation status of a habitat/ species, reducing or increasing the ability to sustain the habitat or the population level of the species within a given geographic area. Relative to the wider

Scale of Change	Criteria and resultant effect
	habitat resource/ species population, a large area of habitat or large proportion of the wider species population is affected. For designated sites, integrity is compromised. There may be a change in the level of importance of the receptor in the context of the project.
Medium	The change permanently (or over the long-term) affects the conservation status of a habitat/ species reducing or increasing the ability to sustain the habitat or the population level of the species within a given geographic area. Relative to the wider habitat resource/ species population, a small-medium area of habitat or small-medium proportion of the wider species population is affected. There may be a change in the level of importance of this receptor in the context of the project.
Low	The quality or extent of designated sites or habitats or the sizes of species' populations, experience some small-scale reduction or increase. These changes are likely to be within the range of natural variability and they are not expected to result in any permanent change in the conservation status of the species/habitat or integrity of the designated site. The change is unlikely to modify the evaluation of the receptor in terms of its importance.
Very Low	Although there may be some effects on individuals or parts of a habitat area or designated site, the quality or extent of sites and habitats, or the size of species populations, means that they would experience little or no change. Any changes are also likely to be within the range of natural variability and there would be no short-term or long-term change to conservation status of habitats/ species receptors or the integrity of designated sites.
Negligible	A change, the level of which is so low, that it is not discernible on designated sites or habitats or the size of species' populations, or changes that balance each other out over the lifespan of a project and result in a neutral position.

9.4.5 Assessing Significance

- 9.4.5.1 Adverse effects are assessed as likely significant effects if the conservation status of an important ecological feature would be compromised as a result of the magnitude of impact resulting from Proposed Development and/ or value of the feature impacted. Beneficial effects are assessed as those where a resulting change from baseline improves the quality of the environment (e.g. increases species diversity, increases the extent of a particular habitat or halts/ slows down an existing decline). For a beneficial effect to be classified as a likely significant effect, the conservation status would need to positively increase in line with a magnitude of change of 'High', as described in Table 9-2 above.
- 9.4.5.2 Conservation status is defined as follows (as per the CIEEM EcIA guidance)¹³⁹:
"For habitats, conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and typical species within a given geographical area."
- 9.4.5.3 For species, significance of impact on conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.
- 9.4.5.4 The decision as to whether the conservation status of an ecological feature would alter will be made using professional judgement, drawing upon the information produced through the desk study, field survey and assessment of how each feature is likely to be affected by the Proposed Development.

- 9.4.5.5 A similar procedure will be used where designated sites (both statutory and non-statutory) may be affected by the Proposed Development, except that the assessment will draw upon the effects on the conservation status of the features for which the site has been designated.

9.4.6 Habitats Regulations Assessment

- 9.4.6.1 As described in **Section 9.5: Baseline Conditions**, four international sites designated for nature conservation are located within the 10km study area for the Site, including Rutland Water SPA and Ramsar site. Therefore, a Habitats Regulations Assessment (HRA) will be undertaken to accompany the Application. A HRA screening assessment will be prepared to determine whether the Proposed Development will have any Likely Significant Effects (LSE) on the qualifying features of this statutory designated site.
- 9.4.6.2 In the event that LSE cannot be ruled out without the application of mitigation controls, a Stage 2 Appropriate Assessment will be provided. The Appropriate Assessment will consider whether, following the application of mitigation, the Proposed Development would result in adverse impacts to the integrity of the designation(s), in relation to the site's features and conservation objectives. If this cannot be ruled out, the further stages of the HRA process will be carried out.

9.5 Baseline Conditions

- 9.5.1.1 The section should be read in conjunction with the desk and field study methods described in **Section 3: Methodology** of the **Appendix B: Preliminary Ecological Appraisal**, **Section 9.2: Study Area and Data Sources** and **Section 9.4: Assessment Methodology**.

9.5.2 Existing Baseline

International Statutory Designated Sites within 10km of the Site

- 9.5.2.1 The location and extent of relevant international statutory designated sites are displayed on **Figure 9.1: Statutory Designated Ecological Sites**.
- 9.5.2.2 There are four international sites designated for nature conservation within 10km of the Site. The closest is Rutland Water SPA and Ramsar site, located 3.5km south-west of the Solar Development Site. Sites are shown in Table 9-3 below.

Table 9-3: Internationally Important Statutory Designated Sites within 10 km

Site name	Reason for designation	Distance, connectivity and orientation from Solar Development Site	Distance from Site (including Grid Cable Route Search Area)
Rutland Water Ramsar/ SPA ¹⁴¹	Major wetland formed by a large reservoir, supporting internationally significant populations of wintering and passage wildfowl such as teal <i>Anas crecca</i> .	3.5km south-west	5.3km west (Southern Grid Cable Route Search Area).

Site name	Reason for designation	Distance, connectivity and orientation from Solar Development Site	Distance from Site (including Grid Cable Route Search Area)
Grimsthorpe SAC ¹⁴²	Designated for presence of early gentian <i>Gentianella anglica</i> in its northermost range (2–3 colonies totalling several hundred plants in old oolitic limestone quarries) Supports semi-natural dry grasslands and scrubland facies on calcareous substrates.	6.7km north-east	2.6km east (Northern Grid Cable Route Search Area).
Barnack Hills & Holes, SAC ¹⁴³	Designated as semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>). Orchid rich priority site including what is considered to be the largest UK population of the nationally scarce man orchid <i>Aceras anthropophorum</i> .	9.0km south-east	2.6km south (Southern Grid Cable Route Search Area)
Baston Fen SAC ¹⁴⁴	An inland waterway which qualifies as an SAC due to the presence of Spined loach <i>Cobitis taenia</i> .	>10km west	9.1km west (Northern Grid Cable Route Search Area).

National Statutory Designated Sites within 2.5km of the Site

9.5.2.3 There are several statutory designated sites of national importance within 2.5km of the Site (Table 9-4 and **Figure 9.1: Statutory Designated Ecological Sites** indicates the location of these SSSI).

Table 9-4: Nationally Important Statutory Designated Sites within 2.5km

Site name	Reason for designation	Distance, connectivity and orientation from Solar Development Site	Distance from Site (including Grid Cable Route Search Area)
Newell Wood SSSI	An oak-birch woodland; the site comprises one of the best remaining examples of acid lowland woodland in Leicestershire ¹⁴⁵ .	<5m north-east	10m south-east (Northern Grid Cable Route Search Area).
Clipsham Old Quarry and Pickworth Great Wood Site SSSI	Contains some of the best areas of species-rich limestone grassland in the county. Pickworth Great Wood is one of the largest remaining blocks of deciduous woodland in Leicestershire and contains stands representative of ancient, semi-natural woodland on clay soils in central England ¹⁴⁶ .	15m north, connected via continuation of habitat.	305m west (Northern Grid Cable Route Search Area).
Bloody Oaks Quarry SSSI	Best remaining examples of limestone grassland in Leicestershire, representative of grassland developed on soft limestones. Species-rich grassland ¹⁴⁷ .	15m south-east	1.8km west (Southern Grid Cable Route Search Area).

Site name	Reason for designation	Distance, connectivity and orientation from Solar Development Site	Distance from Site (including Grid Cable Route Search Area)
Ryhall Pasture and Little Warren Verges SSSI	The site combines one of the best remaining examples of semi-natural limestone grassland in Leicestershire with adjacent species-rich roadside verges in Lincolnshire. The grassland type is representative of swards developed on soft limestones in eastern and southern England ¹⁴⁸ .	270m east	650m south (Northern Grid Cable Route Search Area).
East Wood, Great Casterton SSSI	Site comprises one of the best remaining semi-natural woodlands in Leicestershire and is representative of semi-natural woodland on clay soils in Central England ¹⁴⁹ .	600m south-east	20m north (Middle Grid Cable Route Search Area).
Holywell Banks SSSI	Site is comprised of permanent unimproved calcareous grassland spanning 2 banks within larger grazed fields, a disused quarry and an area of roadside verge, all a top of soil formed from Eastern Jurassic Limestone. Intrinsic differences within the environment have allowed for a number of different plant communities to develop, several of which are rare species occurring at the northern limit of their British geographical range ¹⁵⁰ .	845m north	25m north-west (Northern Grid Cable Route Search Area).
Tickencote Marsh SSSI	Base-rich grazing marsh developed below a springline in the valley of the River Gwash, with dry and wet areas and a high species diversity ¹⁵¹ .	860m south-west	1.2km west (Southern Grid Cable Route Search Area).
Tolethorpe Road Verges SSSI	Representative example of eastern Jurassic limestone grassland, which is a scarce habitat in the East Midlands, as a results of the conversion of pasture to cereal cropland. Supports several regionally uncommon plant species ¹⁵² .	1.2km east	10m and 15m south (Middle Grid Cable Route Search Area).
Great Casterton Road Banks	Representative example of calcareous grassland in South Lincolnshire, notable for its populations of three regionally rare plants: sulphur clover <i>Trifolium ochroleucon</i> , greater broom rape <i>Orobanche rapum-genistae</i> , and perennial flax <i>Linum perenne</i> ¹⁵³	1.4km south-east	860m south (Southern Grid Cable Route Search Area).
Empingham Marshy Meadows SSSI	Base-rich marsh and fen, representative of marsh communities in Central and Southern England. Complex of habitats along the valley of the North Brook. Grassland sward has developed a flora characteristic of calcareous soils, while nearer the floor of the valley the occurrence of springs has given rise to the formation of a number of damp grasslands and marshes ¹⁵⁴ .	1.4km south-west	>2.5km
Holywell Banks SSSI	Site consisting of permanent unimproved calcareous grassland, grazed fields, roadside	1.4km north	25m (Northern Grid Cable

Site name	Reason for designation	Distance, connectivity and orientation from Solar Development Site	Distance from Site (including Grid Cable Route Search Area)
	verge, and disused quarry, on limestone soils. Several rare species occur here, with some near to the northern limit of their British geographical range ¹⁵⁵		Route Search Area).
Tolethorpe Road Verges SSSI	Representative example of eastern Jurassic limestone grassland, which is a scarce habitat in the East Midlands, as a results of the conversion of pasture to cereal cropland. Supports several regionally uncommon plant species ¹⁵⁶	1.6km east	15m south (Middle Grid Cable Route Search Area).
Shacklewell Hollow SSSI	A complex of semi-natural habitats with species-rich neutral marsh along a small tributary of the River Gwash ¹⁵⁷ .	2.2km south-west	2.5km south-west (Southern Grid Cable Route Search Area).
Castle Bytham Quarry SSSI	Most complete and stratigraphically significant exposure of the Upper Lincolnshire Limestone Formation, containing an assemblage of ammonites that have been crucial in determining the age of the formation ¹⁵⁸ .	>2.5km	475m south-east (Northern Grid Cable Route Search Area).
Swinstead Valley SSSI	Site is comprised of rare calcareous grassland developed on Eastern Jurassic Limestone derived soils ¹⁵⁹ .	>2.5km	1.1km east (Northern Grid Cable Route Search Area).
Grimsthorpe Park SSSI	Best remaining example of ancient parkland in Lincolnshire, home to ancient and mature trees that support over 250 species of beetle and hollow trees that provide roosts for bats ¹⁶⁰ .	>2.5km	870m east (Northern Grid Cable Route Search Area).

Locally Important Statutory Designated Sites within 2.5km of Solar Development Site

9.5.2.4 There are no LNR located within the 2.5km study area for the Solar Development Site. Stanton's Pit LNR, a former sand quarry which has been developed and is now maintained by Lincolnshire Wildlife Trust (LWT) as a nature reserve¹⁶¹ is located >2.5km (4.0km north-east of the Solar Development Site) and 1.6km north-east of the Northern Grid Cable Route Search Areas shown on **Figure 9.1: Statutory Designated Ecological Sites**.

Non-statutory designated sites within 2km of Solar Development Site

9.5.2.5 As described in **Appendix B: Preliminary Ecological Appraisal**, there are a significant number of non-statutory designated LWS located within the study area. These sites have been designated (or are candidate/ potential LWS status) for their biodiversity value at a local level and are known to have supporting value to a wide variety of protected and ecologically important species and, or habitats. Refer to **Figure 9.3: Local Wildlife Sites within 2km of Solar Development Site** and **Appendix B: Preliminary**

Ecological Appraisal for the list of non-statutory designated sites.

- 9.5.2.6 As design develops for the grid connection cables and the Grid Cable Route Search Area is further defined, the existing desk study will be updated to include LWS present within 2km of the Site and the results presented in the ES that accompanies the Application.

Priority Habitats

- 9.5.2.7 Priority habitats under Section 41 of the NERC Act 2006¹⁶² present or likely to be present (where determination by further survey is required) on land within the Site include: ancient and/ or species-rich hedgerows, rivers, standing water/ ponds, arable field margins and lowland mixed deciduous woodland. These habitats have potential to support a range of protected and notable species.
- 9.5.2.8 As described in **Section 4.4: Habitats – Desk Study** of **Appendix B: Preliminary Ecological Appraisal**, ancient woodland is located within the 2km study area including several parcels located immediately adjacent to the Solar Development Site. This includes Pickworth Great Wood (a.k.a. Holywell Wood (ASNW)) located north of the north-east portion, Woodhead Wood (ASNW and ancient replanted woodland) located adjacent to the east, and Bloody Oaks (ASNW) located adjacent to the south-west of the Solar Development Site.
- 9.5.2.9 Ancient Woodland is also located in the study area for the Site. A small portion of three ancient woodland parcels; High Wood, Great Osgrove Wood, and Dodsey Woods – all ASNW – are located within the Northern Cable Route Search Area as shown on **Figure 9.2: Non-Statutory Designated Ecological Sites**.

Protected and Notable Species

- 9.5.2.10 Table 9-5 details the current understanding of baseline conditions for protected and notable species within the Solar Development Site. This understanding will be enhanced through the protected species survey programme that is currently ongoing. The baseline conditions for wintering birds has been informed by results from one survey season between November 2024 and March 2025.

Table 9-5: Summary of protected species baseline conditions – Solar Development Site

Species	Description	Requirement for further survey
Flora	Notable arable associate species that were identified throughout the Solar Development Site include chicory <i>Cichorium intybus</i> and sharp-leaved fluellen <i>Kickxia elatine</i>, each listed on the Leicestershire Rare Plant Register. It is important to note that the timing of the walkover survey, conducted outside the peak flowering and growth seasons, may have limited the ability to accurately identify and record notable plant species. The intensive agricultural nature of the site means that the majority of habitats are unlikely to support notable or rare plant species. However, some higher value habitats may support notable flora and as such it is recommended to conduct a further survey in the optimal season.	Yes
Amphibians	The Solar Development Site contains multiple water bodies surrounded by scrub and grassland, offering potential habitat for amphibian species,	Yes - GCN

Species	Description	Requirement for further survey
	including great crested newt (GCN). Many of these water bodies are unshaded and support significant macrophyte growth, which is suitable for egg laying. Given the presence of water bodies with the potential to support GCN, further surveys to determine their presence is recommended.	
Badgers	Numerous badger latrines and dung pits were identified across the Solar Development Site, as well as badger tracks and numerous badger setts. Given the widespread presence of both main and subsidiary setts, along with evidence of territorial markings, indicating that badgers are relatively ubiquitous throughout the Solar Development Site, (likely representing multiple social groups or clans), further badger surveys are recommended. Badgers and their setts are protected by law in the UK under the Protection of Badgers Act 1992.	Yes
Bats	Although the Solar Development Site's open agricultural fields offer limited value to bats, several features significantly enhance its suitability. Scattered mature and semi-mature trees including ash, oak, and maple contain cavities and crevices suitable for roosting. Veteran trees and old stone farm buildings in the study area also provide potential roost sites. Beyond roosting, the Solar Development Site supports important commuting and foraging habitats. Mature tree lines and hedgerows act as linear corridors, connecting the Site to nearby woodlands. Given the Solar Development Site and its surrounds provide possible suitable foraging and commuting habitat for numerous bat species, bat surveys are recommended.	Yes
Breeding birds	The Solar Development Site has the potential to support a diverse bird community due to its varied habitats. Open agricultural fields, including arable land and winter stubble, provide important nesting and foraging grounds for ground-nesting and farmland birds such as skylark and red-legged partridge. Woodland bordering the Solar Development Site enhances the site's ecological value, offering habitat for species like red kite and potentially breeding nightingale. Given the suitable habitat for a variety of birds, a breeding survey programme is proposed.	Yes
Wintering birds	Monthly surveys were conducted between November 2024 and March 2025, which, generally, recorded low levels of bird activity across land parcels. Activity was highest in well maintained hedgerows, in winter stubble (especially that of designated cover crop areas), on woodland edges, and near aquatic features. Activity within cropland fields was variable but generally low. Species of note recorded during the survey period included BoCC 5 Red List species, such as herring gull <i>Larus argentatus</i>, greenfinch <i>Chloris chloris</i>, linnet <i>Carduelis cannabina</i> and lapwing <i>Vanellus vanellus</i>, Amber-listed snipe <i>Gallinago gallinago</i>, and Annex 1 species golden plover <i>Pluvialis apricaria</i> and red kite <i>Milvus milvus</i>. Occasional larger congregations of gulls, corvids, woodpigeon <i>Columba palumbus</i> and stock dove <i>Columba oenas</i> were also recorded. Notable species recorded at other times included merlin <i>Falco columbarius</i>, and jack snipe <i>Lymnocryptes minimus</i>, with woodcock <i>Scolopax rusticola</i> also known to be present (<i>pers.com</i>, landowner).	No – refer to paragraph 9.5.2.13

Species	Description	Requirement for further survey
Barn owls	Evidence of barn owl activity was recorded at several locations across the Solar Development Site. A carcass found in the north-east suggests recent or ongoing use of a potential roosting feature. Multiple mature trees showed signs of use, such as splashing and pellets, indicating possible roost or rest sites. Given suitable habitat on-site for barn owl, as well as multiple signs of barn owl observed throughout the site, surveys for barn owl are recommended to identify any nest sites present both within and immediately adjacent to the Site boundary (where access allows), following best practice.	Yes
Fish	No water bodies on the Solar Development Site are likely to be of ecological value for fish species. Water bodies are restricted to scattered ponds found throughout the Solar Development Site and are predominantly small and/ or ephemeral. As a result, these ponds are unlikely to support notable fish populations or establishment of future populations.	No
Invertebrates	Due to the majority of habitats comprising intensive agricultural land, the Solar Development Site is generally unlikely to support protected or notable species of invertebrates.	No
Otter	No direct evidence of otter presence, such as spraints, footprints, or feeding remains, was recorded during the site walkover and no habitat of potential high quality is located within the Solar Development Site.	No
Water Vole	The Solar Development Site is considered sub-optimal for supporting a resident population of water vole. No direct field signs of water vole such as feeding stations, latrines, or burrows were recorded during the site walkover. The majority of the Solar Development Site is dominated by intensively managed agricultural land and ephemeral water features, conditions generally unsuitable for sustaining water vole populations.	No
Reptiles	The Solar Development Site is of limited suitability to support reptiles. The majority of grassland habitat on-site was in agricultural use/ of poor condition and there were limited areas of scrub and woodland habitat to provide sheltering and foraging habitat. Where suitable reptile habitat is present, this is limited to boundary areas that are not predicted to be impacted by proposed works. Also notable is the very high density of pheasants across the Solar Development Site. While this does not preclude the presence of reptiles, the presence of such density of pheasants acts as a significant limiting factor, due to predation.	No
Invasive non-native species	An area of New Zealand pigmyweed <i>Crassula helmsii</i> was identified in one of the ponds surveyed in 2024.	No ¹¹

Protected Species Surveys Programme

9.5.2.11 Based on the findings of the PEA, a suite of protected species surveys as detailed below have been identified as required to inform the ES. The survey programme is currently ongoing.

9.5.2.12 Surveys identified below reflect the Solar Development Site only. As design develops

¹¹ No specific surveys are required at this time, but surveyors will look for and record evidence of other INNS during the course of other surveys.

for the grid connection and the Grid Cable Route Search Area is further defined, the existing desk study will be updated, and subsequent targeted field surveys will be undertaken to determine the baseline conditions for protected and notable species within the Grid Cable Route Search Area.

Wintering birds

- 9.5.2.13 As per the summary in Table 9-5, whilst some relatively notable species were found, the numbers of birds recorded were generally low. Given the low numbers recorded, it is considered that sufficient data has been obtained over 1 wintering survey season in order to provide baseline data on wintering bird activity on the Solar Development Site in order to assess the potential impacts and effects on relevant bird species. However, given changes to the Solar Development Site that have occurred as described in paragraph 9.2.4.2, it is considered that one further survey season of the Solar Development Site land parcels that have not been subject to survey in the 2024/ 5 wintering season (i.e. the north-east parcel and south-west parcel) is required to understand the baseline habitats and relevant bird species.

Breeding birds

- 9.5.2.14 The breeding birds survey programme commenced in April 2025 and is scheduled to conclude in early July 2025. A total of six separate surveys will be undertaken. An initial scoping exercise was completed to identify areas of highest activity and interest. In line with ornithological survey guidance and best practice, six targeted surveys will be completed across spring and summer. Five surveys will be undertaken between 5am and 12pm to capture dawn, and one dusk survey will be undertaken.

Great Crested Newt Surveys

- 9.5.2.15 GCN eDNA sampling will be undertaken on all water bodies that meet the GCN district level licensing (DDL) sampling requirements criteria within the Solar Development Site to assess the presence and distribution of GCN. Sampling is to be undertaken in accordance with a DLL approach. A habitat suitability index (HSI) assessment is being undertaken for all water bodies, but in accordance with a DLL approach, water bodies will not be excluded based on HSI score alone.

Bats

- 9.5.2.16 Bat activity was collected from automated static bat detectors placed within representative habitats. The static detectors were deployed for 5 consecutive days on two separate occasions in April and May 2025. The automated detectors were deployed within woodland (or in close proximity), along linear features and within open habitats (simultaneously) such that impacts from the construction and installation of the panel arrays (within open areas) can be compared to activity levels at linear habitats such as hedgerows/ streams and woodland edge, which will be retained. The detector locations were rotated to maximise spatial coverage.
- 9.5.2.17 Depending on the extent of bat activity identified from the first two rounds of static analysis, a decision will be made on whether to continue with static analysis (if activity is low) or to undertake one trapping and tracking survey across the Solar Development

Site (if activity is higher). The data from the bat detectors is currently being reviewed.

Badger

- 9.5.2.18 A single site wide badger survey will be undertaken in Autumn 2025 or Spring 2026. The survey will determine the presence and distribution of badgers across the Solar Development Site and inform ongoing design (e.g. avoidance of main sett activity), preliminary construction mitigations and licensing requirements. The survey will involve searches for signs of presence including dung pits, latrines, hairs, prints and feeding signs/ remains. The survey will also seek to confirm the status of any recorded setts (active or disused) and to classify the sett with respect to its likely function within the social group. A secondary, pre-construction survey is recommended to assess any changes in badger presence and distribution across the Solar Development Site to inform any required changes to preliminary mitigations.

Barn owl

- 9.5.2.19 One Site wide barn owl survey will be undertaken between June and July 2025. The survey will confirm presence of this key Schedule 1 species across the Solar Development Site, including patterns of foraging behaviour, and inform ongoing design (e.g. avoidance of breeding sites) and construction mitigation requirements.

Botanicals

- 9.5.2.20 One targeted botanical survey will be undertaken between May and July 2025. The survey will provide a targeted update to botanical survey information of higher value habitats within the optimal flowering period (noting sub-optimal habitat classification). Where agreed as appropriate (e.g. in proximity to high value habitats such as adjacent SSSI), detailed phase 2 surveys (in accordance with National Vegetation Classification (NVC) criteria will be undertaken.

9.5.3 Future baseline

- 9.5.3.1 Changes as a result of climate change, natural succession of habitats, the introduction of new receptors into an area and the continued operation of existing developments can all influence future baseline.
- 9.5.3.2 In the absence of the Proposed Development, it is predicted that the habitat context and management of the Solar Development Site would see little natural succession of habitats where intensive arable agriculture prevails. As no substantive changes in habitat context and condition are predicted; in particular, the species value of the habitats of the Solar Development Site are likely to remain relatively consistent with the current baseline. Minor changes (upwards or downwards) in the distribution of some species, e.g. nesting birds and bats, may occur in line with small-scale changes in habitat structure as a result of ecological succession or other natural processes. Any such changes are likely to be within the range of normal inter-annual variation in the distribution and abundance of species populations. In addition, potentially relevant protected species (e.g. badger) could establish in new locations where they would impose new working constraints, due to a need to assist in compliance with the legislation protecting these species.

- 9.5.3.3 Within the Grid Cable Route Search Area, similar trends are generally likely to those described above, including natural succession except where new development schemes have the potential to change the future baseline, where these comprise other developments and involve site clearance/ disturbance of habitats or other indirect effects depending on the nature of e.g. emissions to air (point source, road traffic, noise etc.). Such changes to future baseline will be appraised in the ES.
- 9.5.3.4 Within the Site, water quality is expected to improve due to legislation requirements and interventions such as Water Framework Directive (WFD) targets, positively supporting the potential for terrestrial and aquatic ecology.

9.6 Potential Impacts and Effects

- 9.6.1.1 This section identifies potential impacts at a point in time in relation to the construction, operation and future decommissioning of the Proposed Development.

9.6.2 Construction

- 9.6.2.1 The following potential impacts on ecological features could occur during the construction of the Proposed Development:
- indirect impacts on statutory and non-statutory designated sites located directly adjacent and in close proximity to the Site;
 - indirect impacts on ancient woodland located directly adjacent to the Site;
 - loss of habitat to accommodate the On-Site Substation(s) and other infrastructure related to the Proposed Development;
 - potential direct impacts from long-term land take and related habitat loss (e.g. for the installation of panels); noting this will be within primarily arable land and is likely to include an element of habitat creation/ enhancement to support BNG;
 - temporary loss of habitat (e.g. for the installation of cables and creation of equipment laydown areas);
 - incidental mortality or injury of species as a result of construction activity (e.g. vehicle impact or during habitat clearance);
 - displacement/ disturbance and loss of foraging habitat used by species such as GCN, reptiles, small mammals and amphibians;
 - fragmentation of habitats and/ or populations, where a previously continuous ecological network (e.g. hedgerow) is broken up physically (e.g. sections of hedgerow removed) or by light or noise pollution on the hedgerow (or similar) creating a barrier to animal movements. This can prevent sensitive species (e.g. bats) crossing from their dwellings to their feeding areas;
 - disturbance; where the conditions on-site change (e.g., presence of humans, additional noise, light or vibration), individuals or populations may change their behaviour or range including INNS; and
 - habitat modification and degradation which could reduce the value of the existing habitat from physical means (e.g. soil compaction from construction vehicles) or chemical changes (e.g. pollution of watercourses).

9.6.3 Operation

- 9.6.3.1 The operation of the Proposed Development has the potential to result in likely

significant effects on important ecological features and these effects may include:

- impacts to bats through any security lighting (expected to be very limited);
- potential disturbance to flora and fauna through from ongoing/ cyclical maintenance activities, including panel replacements, of the Proposed Development; and
- potential increase in botanical, birds and invertebrate species-richness due to managing habitats and enhancing field boundaries for the benefit of biodiversity.

9.6.3.2 Risk of impacts to ground nesting farmland and wintering birds during maintenance operations (via vehicle movements) would be expected to be less than during construction but maintenance operations should still be sensitive of ground nesting and be undertaken outside of nesting seasons but remain Scoped In.

9.6.4 Decommissioning

9.6.4.1 The Proposed Development will be decommissioned and removed at the end of its operational life. Potential impacts are likely to be similar to those outlined for construction, apart from the reversal of long-term land take for PV modules. As described in **Section 2.7: Decommissioning**, vegetation planted for landscaping and ecological purposes would be left in-situ on handback of land to landowners following decommissioning (with the exception of grassland planted under the Panel Areas).

9.7 Design, Mitigation and Enhancement Measures

9.7.1 Embedded measures

9.7.1.1 The Proposed Development is currently evolving through an environmentally led iterative design process (as described in **Section 2: Site Description and the Proposed Development**). At the outset of this design process, the Applicant has set out a series of Design Principles (refer to **Section 2.4: Environmental Design**) that it is seeking to achieve, as far as reasonably practicable, in the design of the Proposed Development.

9.7.1.2 Embedded measures can comprise modifications to the design of a scheme made during the pre-application phase that seek to avoid or minimise impacts, that are an inherent part of the design and do not require additional action to be taken. Therefore, embedded measures may comprise, or be informed by, the Design Principles as well as other mitigation measures. Embedded measures for the Proposed Development relevant to ecology and biodiversity are set out in **Section 2.4: Environmental Design**.

9.7.1.3 Further embedded measures are likely to include:

- core working hours are set out in **Section 2.5: Construction Programme and Activities** and do not involve routine night-time working - this will reduce impacts to foraging/ commuting bats, which will not generally be subject to lighting impacts other than for a short period potentially during spring/ autumn when bat activity at dusk may overlap with end of day and start of day working; and
- as described in **Section 14.6: Potential Impacts and Effects**, site access optioneering is ongoing and it is currently anticipated that a minimum of three points of vehicular access for the Solar Development Site will be required during the construction and decommissioning of the Proposed Development. As far as

reasonably practicable, existing access points will be considered in order to reduce the potential for habitat loss.

- 9.7.1.4 The measures confirmed as part of the EIA process will be described in the outline management plans and their implementation secured by a Requirement of the draft DCO.

9.7.2 Management Plans

- 9.7.2.1 A suite of management plans will be in place for the Proposed Development. Outline versions of these management plans will incorporate standard industry best practice, considered as embedded measures, as well as any further mitigation that is deemed required as a result of the EIA process. These will be submitted with the Application to secure the commitments contained within. Those relevant to ecology and biodiversity include:
- oCEMP;
 - oOEMP;
 - oLEMP, including general management, monitoring and maintenance measures specific to landscape and ecology; and
 - oDEMP.
- 9.7.2.2 The oLEMP would be prepared, incorporating an environmental masterplan, highlighting how the long-term management of the land within and adjacent to the Proposed Development will deliver a substantial net gain in biodiversity, and this will be demonstrated through the appropriate use of the Defra Biodiversity Metric. Opportunities will also be sought in the development of the environmental masterplan to:
- connect and extend existing woodland and hedgerows to strengthen the landscape pattern and habitat connectivity as part of the green infrastructure and nature network;
 - achieve early establishment and maximise visual screening through advanced planting;
 - enhance existing PRoW and permissive paths;
 - enhance existing hedgerow in poor condition and reinforce with planting and management, where appropriate;
 - enhance habitats in consultation with landowners in the context of wider environmental net gain;
 - hedgerow planting along existing or remnant field boundaries to maximise landscape integration where appropriate; and
 - reinforce the existing landscape pattern, including enhancement of field boundaries where appropriate.
- 9.7.2.3 Mitigation, using widely accepted methods, is likely to be required to ensure that sufficient habitat within the Solar Development Site remains and is managed appropriately to allow for continued nesting and foraging habitat for ground nesting birds. Mitigation will also be required to ensure suitable foraging habitat and food source remains for red-listed BoCC. This habitat will be developed in collaboration with the design engineers and landscape architect and will be an integral part of the design of the Proposed Development.

9.7.3 Further mitigation

- 9.7.3.1 Further mitigation are actions that require further activity beyond embedded mitigation and management plans to achieve a reduction in significance of a likely significant adverse effect, and/ or anticipated outcome. Further mitigation for biodiversity will be defined, if required, through the EIA process once the significance of effects has been assessed. Options for further mitigation for the Proposed Development relevant to biodiversity will be dependent upon the ecological features identified during the updated PEA and baseline surveys (it is noted that these surveys will also assist assessing the condition of habitats to provide a baseline for the purposes of achieving an overall BNG). Once the value of the ecological features and the likely effects on them are fully understood, the following mitigation hierarchy will be adopted:
- avoid impacts (e.g. move aspects of the Proposed Developments to avoid features entirely);
 - minimise impacts (e.g. reducing the area of land take); and
 - restore after impacts (e.g. restoring a habitat damaged during construction).
- 9.7.3.2 Compensation (e.g. creating additional habitat to that embedded in the design where it was not previously found) would be undertaken only where the above cannot be carried out.
- 9.7.3.3 As far as practicable, the Proposed Development design will be guided to avoid ecological impacts. The mitigation to be described in the Chapter 9: Ecology and Biodiversity of the ES that accompanies the Application will focus on minimising, restoring and compensating for impacts that cannot be avoided. Where the design incorporates avoidance of ecological features, this will be identified. The proposed mitigation will be designed to be proportionate to the value of the feature and consequent impacts of the Proposed Development. Where there is uncertainty in the level of effect, a precautionary approach will be taken.
- 9.7.3.4 Other further mitigation which may be required for the Proposed Development relevant to species and habitats may include:
- further surveys may reveal the requirement for licences with bespoke mitigation solutions for protected species such as bats, great crested newts and water voles;
 - further assessment may reveal that bespoke mitigation solutions are required to ensure there are no likely significant effects to nearby designated sites;
 - to support BNG appropriate to the landscape, strategically significant habitats (e.g. valuable habitats which are limited or have been lost from the local area) would be restored or created where practicable. Such habitats would be identified by referring to available guidance such as Natural England's National Character Area (NCA) profiles or Local Nature Recovery Strategy;
 - timing construction works to avoid the bird breeding season, to avoid disturbance impact to nesting birds (or provision of Ecological Clerk of Works (ECoW) to check for the presence of active nests, establish appropriate buffer zones and monitor disturbance);
 - ensuring all open excavations are either ramped or fenced such that unintended entrapment of fauna does not occur;
 - provision of an ECoW to minimise impacts to GCN, reptiles and nesting birds during construction, via conducting searches of habitats in advance and establishing temporary buffer zones;

- establishment of a sensitive lighting plan covering construction and operational lighting to ensure lighting of suitable bat commuting, foraging and roosting habitats and otter/ water vole habitat is minimised;
- installation of mammal ‘gates or similar access features within perimeter fencing to maintain cross site connectivity for terrestrial mammals; and
- measures to avoid pollution or sediment transfer during construction.

9.8 Likely Significant Effects

9.8.1 Statutory and Non-Statutory Designated Sites - Construction, Operation and Decommissioning

- 9.8.1.1 The construction, operation and decommissioning phases of the Proposed Development have the potential to result in a range of ecological impacts and effects as described in **Section 9.6: Potential Impacts and Effects** on the ecological features described in **Section 9.5: Baseline Conditions** of this report. These potential impacts and effects are identified for further assessment and summarised in Table 9-6 - Table 9-9 Effects are described as having the potential to be direct or indirect depending on the location and extent of the impact.
- 9.8.1.2 In the case of European designated sites, this has included the consideration of the potential presence of land areas (within the zone of influence of the proposals) that support the overall integrity and status of those sites, also known as functionally linked land (FLL). FLL is defined by Natural England as:
“areas of land or sea occurring outside a designated site which is considered to be critical to, or necessary for, the ecological or behavioural functions in a relevant season of a qualifying feature for which a Special Areas of Conservation (SAC)/ Special Protection Area (SPA)/ Ramsar site has been designated. These habitats are frequently used by SPA species and supports the functionality and integrity of the designated sites for these features”.
- 9.8.1.3 As noted in **Section 2.3: Electricity Export to National Grid**, the Grid Cable Route Search Area shown in **Figure 1.4: Parts of the Site Referred to in the EIA Scoping Report** is subject to ongoing discussion with National Grid, studies and assessments. If the optionality is reduced over the pre-application period and one or more of the Northern, Middle or Southern Grid Cable Route Search Areas is removed from the Site, matters within those corridors, where they are noted to be Scoped In in Table 9-6 – Table 9-9 will be automatically **Scoped Out** in relation to the relevant Grid Connection Cable Route Search Area.

Table 9-6: Biodiversity Scoping Summary - Designated Sites

				Scoped In/ Out for further assessment			
Site Name	Site Location in relation to the Solar Development Site	Site Location in relation to the Grid Cable Route Search Area	Summary of Features	Potential for likely significant effects	Construction	Operation	Decommissioning
International Statutory Designated Sites within 10km of the Site							
Rutland Water Ramsar, SPA and SSSI	3.5km south-west	5.3km west (Southern Grid Cable Route Search Area).	Major wetland formed by a large reservoir, supporting internationally significant populations of wintering and passage wildfowl such as teal <i>Anas crecca</i> .	Potential for effects to land that may be considered FLL.	Scoped In and included in HRA screening.	Scoped In and included in HRA screening.	Scoped In and included in HRA screening.
Grimsthorpe SAC	6.7km north-east	2.6km east (Northern Grid Cable Route Search Area).	Designated for presence of early gentian <i>Gentianella anglica</i> in its northermost range (2–3 colonies totalling several hundred plants in old oolitic limestone quarries). Supports semi-natural dry grasslands and scrubland facies on calcareous substrates.	No likely significant effects to qualifying natural habitats and habitats of qualifying species given distance from Site and intervening land-use - no plausible pathway for impacts considering source/ pathway/ receptor approach. oCEMP will minimise potential for airborne pollutants.	Scoped Out of EcIA - but included in HRA screening.	Scoped Out of EcIA - but included in HRA screening.	Scoped Out of EcIA - but included in HRA screening.

				Scoped In/ Out for further assessment			
Site Name	Site Location in relation to the Solar Development Site	Site Location in relation to the Grid Cable Route Search Area	Summary of Features	Potential for likely significant effects	Construction	Operation	Decommissioning
Barnack Hills & Holes, SAC	9.0km south-east	2.6km south (Southern Grid Cable Route Search Area).	Designated as semi-natural dry grasslands and scrubland facies on calcareous substrates <i>Festuco-Brometalia</i> . Orchid rich priority site including what is considered to be the largest UK population of the nationally scarce man orchid <i>Aceras anthropophorum</i> .	No likely significant effects to qualifying natural habitats and habitats of qualifying species given distance from Site and intervening land-use - no plausible pathway for impacts considering source/ pathway/ receptor approach. oCEMP will minimise potential for airborne pollutants.	Scoped Out of EcIA - but included in HRA screening.	Scoped Out of EcIA - but included in HRA screening.	Scoped Out of EcIA - but included in HRA screening.
Baston Fen SAC	>10km east	9.1km east (Northern Grid Cable Route Search Area).	An inland waterway which qualifies as an SAC due to the presence of Spined loach <i>Cobitis taenia</i> .	No likely significant effects to hydrology given distance from Site - no plausible pathway for impacts considering source/pathway/receptor approach.	Scoped Out of EcIA - but included in HRA screening.	Scoped Out of EcIA - but included in HRA screening.	Scoped Out of EcIA - but included in HRA screening.
National and Local Important Statutory Designated Sites within 2.5km of the Site							
Newell Wood SSSI	<5m north-east	10m south-east (Northern Grid Cable Route Search Area).	An oak-birch woodland; the site comprises one of the best remaining examples of acid	Potential for direct effects, habitat loss or degradation during construction and/or	Scoped In	Scoped Out	Scoped In

				Scoped In/ Out for further assessment			
Site Name	Site Location in relation to the Solar Development Site	Site Location in relation to the Grid Cable Route Search Area	Summary of Features	Potential for likely significant effects	Construction	Operation	Decommissioning
			lowland woodland in Leicestershire.	decommissioning noting that appropriate sets offs and use of the oCEMP and oDEMP will provide embedded mitigation.			
Clipsham Old Quarry and Pickworth Great Wood Site SSSI	15m north connected via continuation of habitat.	305m west (Northern Grid Cable Route Search Area).	Contains some of the best areas of species-rich limestone grassland in the county. Pickworth Great Wood is one of the largest remaining blocks of deciduous woodland in Leicestershire and contains stands representative of ancient, semi-natural woodland on clay soils in central England.	As above.	Scoped In	Scoped Out	Scoped In
Bloody Oaks Quarry SSSI	15m south-east	1.8km west (Southern Grid Cable Route Search Area).	Best remaining examples of limestone grassland in Leicestershire, representative of grassland developed on soft limestones.	As above.	Scoped In	Scoped Out	Scoped In

				Scoped In/ Out for further assessment			
Site Name	Site Location in relation to the Solar Development Site	Site Location in relation to the Grid Cable Route Search Area	Summary of Features	Potential for likely significant effects	Construction	Operation	Decommissioning
			Species-rich grassland.				
Ryhall Pasture and Little Warren Verges SSSI	270m east	650m south (Northern Grid Cable Route Search Area).	The site combines one of the best remaining examples of semi-natural limestone grassland in Leicestershire with adjacent species-rich roadside verges in Lincolnshire. The grassland type is representative of swards developed on soft limestones in eastern and southern England.	Potential for indirect effects through longer-range deposition of pollutants during construction and/or decommissioning.	Scoped In	Scoped Out	Scoped In
East Wood, Great Casterton SSSI	600m south-east	20m north (Middle Grid Cable Route Search Area).	Site comprises one of the best remaining semi-natural woodlands in Leicestershire, and is representative of semi-natural woodland on clay soils in Central England.	Potential for direct effects, habitat loss or degradation during construction and/ or decommissioning of Grid Cable Route Search Area. Potential for indirect effects through longer-range deposition of pollutants during construction and/ or decommissioning	Scoped In	Scoped Out	Scoped In

				Scoped In/ Out for further assessment			
Site Name	Site Location in relation to the Solar Development Site	Site Location in relation to the Grid Cable Route Search Area	Summary of Features	Potential for likely significant effects	Construction	Operation	Decommissioning
				of Solar Development Site.			
Holywell Banks SSSI	845m north	25m north-west (Northern Grid Cable Route Search Area).	Site is comprised of permanent unimproved calcareous grassland spanning 2 banks within larger grazed fields, a disused quarry and an area of roadside verge, all a top of soil formed from Eastern Jurassic Limestone. Intrinsic differences within the environment have allowed for a number of different plant communities to develop, several of which are rare species occurring at the northern limit of their British geographical range	As above.	Scoped In	Scoped Out	Scoped In
Tickencote Marsh SSSI	860m south-west	1.2km west (Southern Grid Cable Route Search Area).	Base-rich grazing marsh developed below a springline in the valley of the River Gwash, with dry and wet areas	Potential for indirect effects through longer-range deposition of pollutants during	Scoped In	Scoped Out	Scoped In

				Scoped In/ Out for further assessment			
Site Name	Site Location in relation to the Solar Development Site	Site Location in relation to the Grid Cable Route Search Area	Summary of Features	Potential for likely significant effects	Construction	Operation	Decommissioning
			and a high species diversity.	construction and/or decommissioning.			
Tolethorpe Road Verges SSSI	1.2km east	10m and 15m south (Middle Grid Cable Route Search Area).	Representative example of eastern Jurassic limestone grassland, which is a scarce habitat in the East Midlands, as a results of the conversion of pasture to cereal cropland. Supports several regionally uncommon plant species.	Potential for direct effects, habitat loss or degradation during construction and/ or decommissioning of Grid Cable Route Search Area. Potential for indirect effects through longer-range deposition of pollutants during construction and/or decommissioning of Solar Development Site.	Scoped In	Scoped Out	Scoped In
Great Casterton Road Banks SSSI	1.4km south- east	860m south (Southern Grid Cable Route Search Area).	Representative example of calcareous grassland in South Lincolnshire, notable for its populations of three regionally rare plants: sulphur clover <i>Trifolium ochroleucon</i> , greater broom rape <i>Orobanche rapum-genistae</i> , and	Potential for indirect effects through longer-range deposition of pollutants during construction and/or decommissioning.	Scoped In	Scoped Out	Scoped In

				Scoped In/ Out for further assessment			
Site Name	Site Location in relation to the Solar Development Site	Site Location in relation to the Grid Cable Route Search Area	Summary of Features	Potential for likely significant effects	Construction	Operation	Decommissioning
			perennial flax <i>Linum perenne</i>				
Empingham Marshy Meadows SSSI	1.4km south-west	>2.5km west (Southern Grid Cable Route Search Area).	Base-rich marsh and fen, representative of marsh communities in Central and Southern England. Complex of habitats along the valley of the North Brook. Grassland sward has developed a flora characteristic of calcareous soils, while nearer the floor of the valley the occurrence of springs has given rise to the formation of a number of damp grasslands and marshes.	Potential for indirect effects through longer-range deposition of pollutants during construction and/or decommissioning of Solar Development Site. No likely significant effects in relation to Grid Connection Cables as no plausible pathway for impacts (distance from source 3.6km). oCEMP will minimise potential for airborne pollutants.	Scoped In (Solar Development Site) Scoped Out (Grid Cable Route Search Area)	Scoped Out	Scoped In (Solar Development Site) Scoped Out (Grid Cable Route Search Area)
Shacklewell Hollow SSSI	2.2km south-west	2.5km south-west (Southern Grid Cable Route Search Area)	A complex of semi-natural habitats with species-rich neutral marsh along a small tributary of the River Gwash.	Potential for indirect effects through longer-range deposition of pollutants during construction and/or decommissioning of Solar Development Site.	Scoped In	Scoped Out	Scoped In

				Scoped In/ Out for further assessment			
Site Name	Site Location in relation to the Solar Development Site	Site Location in relation to the Grid Cable Route Search Area	Summary of Features	Potential for likely significant effects	Construction	Operation	Decommissioning
				No likely significant effects as no plausible pathway for impacts (distance from source >2.5km). oCEMP will minimise potential for airborne pollutants.			
Castle Bytham Quarry SSSI	>2.5km	475m south-east (Northern Grid Cable Route Search Area).	Most complete and stratigraphically significant exposure of the Upper Lincolnshire Limestone Formation, containing an assemblage of ammonites that have been crucial in determining the age of the formation	Potential for indirect effects through longer-range deposition of pollutants during construction and/or decommissioning of Grid Cable Route Search Area. No likely significant effects in relation to Solar Development Site as no plausible pathway for impacts (distance from source 3.1km). oCEMP will minimise potential for airborne pollutants.	Scoped In (Grid Cable Route Search Area) Scoped Out (Solar Development Site)	Scoped Out	Scoped In (Grid Cable Route Search Area) Scoped Out (Solar Development Site)
Swinstead Valley SSSI	>2.5km	1.1km east (Northern Grid	Site is comprised of rare calcareous grassland developed on	As above	Scoped In (Grid Cable Route Search Area)	Scoped Out	Scoped In (Grid Cable Route Search Area)

				Scoped In/ Out for further assessment			
Site Name	Site Location in relation to the Solar Development Site	Site Location in relation to the Grid Cable Route Search Area	Summary of Features	Potential for likely significant effects	Construction	Operation	Decommissioning
		Cable Route Search Area).	Eastern Jurassic Limestone derived soils		Scoped Out (Solar Development Site)		Scoped Out (Solar Development Site)
Grimsthorpe Park SSSI	>2.5km	870m east (Northern Grid Cable Route Search Area).	Best remaining example of ancient parkland in Lincolnshire, home to ancient and mature trees that support over 250 species of beetle and hollow trees that provide roosts for bats	As above	Scoped In (Grid Cable Route Search Area) Scoped Out (Solar Development Site)	Scoped Out	Scoped In (Grid Cable Route Search Area) Scoped Out (Solar Development Site)
Stanton's Pit LNR	>2.5km	1.6km north-east (Northern Grid Cable Route Search Area).	Lincolnshire Wildlife Trust local nature reserve.	Potential for indirect effects through longer-range deposition of pollutants during construction and/or decommissioning.	Scoped In (Grid Cable Route Search Area) Scoped Out (Solar Development Site)	Scoped Out	Scoped In (Grid Cable Route Search Area) Scoped Out (Solar Development Site)

Table 9-7: Biodiversity Scoping Summary – Ancient Woodland and Local Wildlife Sites within 2km of the Site

					Scoped In/ Out for further assessments		
Site Name	Site Location in relation to the Solar Development Site	Site Location in relation to the Site (including the Grid Cable Route Search Area)	Summary of Features	Potential for Significant Effects	Construction	Operation	Decommissioning
Ancient Woodland	All ancient woodland notified within 1km of Site (refer to Appendix B: Preliminary Ecological Appraisal)		Refer to Appendix B	Potential for indirect effects during construction and/ or decommissioning.	Scoped In	Scoped Out	Scoped In
Local Wildlife Sites	All LWS within 1km of Site (refer to Appendix B: Preliminary Ecological Appraisal)		Refer to Appendix B	Potential for direct/ indirect effects during construction and/ or decommissioning.	Scoped In	Scoped Out	Scoped In

9.8.1.4 All ancient woodland located over 1km from the Site (including Solar Development Site) has been **Scoped Out** for further assessment for construction, operation, and decommissioning because it is not connected by continuous woodland or other relevant habitat to the Site and it is considered unlikely that impacts to relevant mobile species such as birds, bats or highly mobile invertebrates would occur beyond this distance.

9.8.2 Habitats and Species - Construction, Operation and Decommissioning

9.8.2.1 No surveys have been carried out to date within the Grid Cable Route Search Area. As design develops for the Grid Connection Cables and the Grid Cable Route Search Area is further defined, targeted field surveys will be undertaken to determine the baseline conditions for protected and notable species within the Grid Cable Route Search Area. These surveys and desk study findings will determine the distribution and/ or populations of protected species likely to be present within the Grid Cable Route Search Area and, as applicable within the relevant study area. This data is key to assist in the development of mitigation strategies to minimise harm to species and their habitats. Additionally, the surveys will help to identify if any European Protected Species (EPS) are present, and therefore the potential need for specific mitigation licences under the Habitats Regulations 2017. Because they cannot yet be **Scoped Out**, all species and habitats within the Grid Cable Route Search Area remain Scoped In.

9.8.2.2 On the basis of the surveys undertaken for the Solar Development Site and preliminary findings reported in the **Appendix B: Preliminary Ecological Appraisal**, the following matters are Scoped In/ **Scoped Out** during construction, operation and decommissioning:

Table 9-8: Biodiversity Scoping Summary - Other Priority Habitats in the Solar Development Site

		Scoped In / Out for further assessments		
Habitat	Potential for Significant Effects	Construction	Operation	Decommissioning
Arable field margins	Present within and adjacent to the Solar Development Site, so potential for likely significant effects, habitat loss and degradation.	Scoped In	Scoped Out	Scoped In
Hedgerows	As above	Scoped In	Scoped Out	Scoped In
Standing open water – ponds	As above	Scoped In	Scoped Out	Scoped In
Deciduous woodland	As above	Scoped In	Scoped Out	Scoped In

Table 9-9: Biodiversity Scoping Summary – Significant Species Potentially in the Solar Development Site

			Scoped In / Out for further assessments		
Habitat	Summary of potential for species within the Solar Development Site	Potential for Significant Effects	Construction	Operation	Decommissioning
Bats	The Solar Development Site and its surrounds provide possible suitable foraging and commuting habitat for numerous bat species.	Loss of roost sites within buildings or trees, fragmentation of commuting routes, and/ or loss of foraging habitat. Also, potential for bat avoidance of PV installations, effects to navigation.	Scoped In	Scoped In	Scoped In
Great Crested Newts	Water bodies on the Solar Development Site and its surrounds have the potential to support GCN populations/ meta-populations.	Loss or degradation of breeding ponds, fragmentation of dispersal routes, loss of foraging habitat and/ or of places of shelter.	Scoped In	Scoped Out	Scoped In
Badgers	Main and subsidiary setts, along with evidence of territorial markings, indicates that badgers are relatively ubiquitous throughout the Solar Development Site, likely representing multiple social groups or clans.	Loss or disturbance of (or damage to) setts, loss or disturbance of dispersal routes and/ or foraging areas.	Scoped In	Scoped Out	Scoped In
Barn owls	Evidence of barn owl activity was recorded at several locations across the Solar Development Site. A carcass found in the north-east suggests recent or ongoing use of a potential roosting feature. Multiple mature trees showed signs of use, such as splashing and pellets, indicating possible roost or nest sites.	Loss or disturbance of nest and/ or roost sites in buildings and/ or trees, loss of foraging habitat and disturbance of habitual foraging corridors. Also, potential for collision risk with PV installations.	Scoped In	Scoped In	Scoped In
Birds (Breeding and Wintering)	The Solar Development Site has the potential to support a diverse bird community due to its varied habitats. Open agricultural fields, including arable land and winter stubble, provide important nesting and foraging grounds for ground-nesting and farmland birds such as skylark and red-legged partridge.	Loss of nesting, foraging and/ or loafing habitat. Also, potential for collision risk with PV installations.	Scoped In	Scoped In	Scoped In

- 9.8.2.3 **Appendix B: Preliminary Ecological Appraisal** explains the rationale for scoping out further assessment of other protected and notable species as detailed in **Table 9-9**.
- 9.8.2.4 A single occurrence of INNS has been identified to date (*Crassula* within one pond) and there were no published records of invasive species within the Solar Development Site from a desk-top review. Other ecological surveys will be used as a mechanism to incidentally record any further occurrences of INNS, but in the event that no (or very limited) further findings are made, the potential for INNS will be managed through measures included in the oCEMP, oLEMP and oDEMP to be submitted with the Application. Therefore, significant effects from INNS are **Scoped Out** from further assessment at this time.

9.9 Assumptions, Limitations and Uncertainties

- 9.9.1.1 Assumptions have been made with regard to the potential/ likely presence of protected and notable species based on the presence of recent records/ desk study data, presence of suitable habitat for that species, and known patterns of geographical distribution. Information relating to the presence of statutory and non-statutory conservation sites is in place at the time of writing and baseline habitat data has been subject to provisional mapping and UKHab classification.
- 9.9.1.2 Baseline surveys are ongoing, and those surveys undertaken after EIA Scoping may reveal the presence of new significant ecological features that could be affected by the Proposed Development and will be considered within the assessment and reported in the ES.

9.10 Summary

- 9.10.1.1 A summary of those matters proposed to be Scoped In and **Scoped Out** of the assessment are set out in **Table 9-10**.

Table 9-10: Ecology and biodiversity scoping summary

Aspect	Scope of Surveys	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Designated Sites				
Designated sites identified in Table 9-6	Desk-based review	All	In	N/A
Ancient woodland and local wildlife sites identified in Table 9-7	Desk-based review	All	In/ Out as per table	Sites proposed to be Scoped Out are not anticipated to experience likely significant effects from the Proposed Development due to their distance beyond 1km (Ancient Woodland and LWS) from the Site.
Habitats				
Arable field margins	Habitat surveys are ongoing	Construction	In	Present within and adjacent to the Solar Development Site, so potential for likely significant effects, habitat loss and degradation noted during construction and/ or decommissioning. No significant effects anticipated from operational activities therefore Scoped Out .
		Operation	Out	
		Decommissioning	In	
Hedgerows	Habitat surveys are ongoing	Construction	In	Present within and adjacent to the Solar Development Site, so potential for likely significant effects, habitat loss and degradation during construction and/ or decommissioning. No significant effects anticipated from operational activities therefore Scoped Out .
		Operation	Out	
		Decommissioning	In	
Standing open water - ponds	Habitat surveys are ongoing	Construction	In	Present within and adjacent to the Solar Development Site, so potential for likely significant effects, habitat loss and degradation during construction and/ or decommissioning. No significant effects anticipated from operational activities therefore Scoped Out .
		Operation	Out	
		Decommissioning	In	
Deciduous woodland	Habitat surveys are ongoing	Construction	In	Present within and adjacent to the Solar Development Site, so potential for likely significant effects, habitat loss and degradation during construction and/ or decommissioning. No significant effects anticipated from operational activities therefore Scoped Out .
		Operation	Out	
		Decommissioning	In	

Aspect	Scope of Surveys	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Species				
Amphibians	eDNA surveys required in 2025 to inform any Natural England District Level Licencing (DLL) required for the project	Construction	In	Potential for loss or degradation of breeding ponds, fragmentation of dispersal routes, loss of foraging habitat and/or of places of shelter during construction and decommissioning. No significant effects anticipated from operational activities therefore Scoped Out .
		Operation	Out	
		Decommissioning	In	
Aquatic fauna	Habitat based assessment will be undertaken	Construction	Out	The scattered ponds found throughout the Solar Development Site are predominantly small and/or ephemeral. As a result, these ponds are unlikely to support notable fish populations or establishment of future populations.
		Operation	Out	
		Decommissioning	Out	
Badger	Surveys will be completed 2025/2026	Construction	In	Potential for loss or disturbance of (or damage to) setts, loss or disturbance of dispersal routes and/ or foraging areas during construction and decommissioning. No significant effects anticipated from operational activities therefore Scoped Out .
		Operation	Out	
		Decommissioning	In	
Bats	Surveys are currently being undertaken	Construction	In	Potential for loss of roost sites within buildings or trees, fragmentation of commuting routes, and/ or loss of foraging habitat. Also, potential for bat avoidance of PV installations, effects to navigation.
		Operation	In	
		Decommissioning	In	
Birds (breeding)	Surveys are currently being undertaken	Construction	In	Potential for loss of nesting, foraging and/ or loafing habitat. Also, potential for collision risk with PV installations.
		Operation	In	
		Decommissioning	In	
Birds (non-breeding)	Surveys are currently being undertaken – winter birds survey complete	Construction	In	Potential for loss of foraging and/ or loafing habitat. Also, potential for collision risk with PV installations.
		Operation	In	
		Decommissioning	In	
Brown hare	No further surveys	Construction	In	The woodland, hedgerow and grassland margins provide high suitability for brown hare, which was observed to utilise all land parcels within the Solar Development Site. There is potential
		Operation	In	

Aspect	Scope of Surveys	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
	proposed beyond habitat assessment already undertaken	Decommissioning	In	for hare to be impacted by development through disturbance, loss of habitat, and direct mortality during construction.
Invertebrates	No further surveys proposed beyond habitat assessment already undertaken	Construction	In	Due to the majority of habitats comprising intensive agricultural land, the Solar Development Site is generally unlikely to support protected or notable species of invertebrates. There is potential for invertebrate habitat loss to occur during construction and decommissioning.
		Operation	Out	
		Decommissioning	In	
Otter	Scoped Out at PEA	Construction	Out	No direct evidence of otter presence, such as spraints, footprints, or feeding remains, was recorded during the field survey. The inundated ditches and small ephemeral water bodies scattered throughout the Solar Development Site offer limited value for otter. Their lack of permanent water, poor connectivity to the main river system, and consequent restricted prey availability make these features less likely to support regular otter activity. As such, it is seen as unlikely that otter are utilising the Solar Development Site at this time.
		Operation	Out	
		Decommissioning	Out	
Reptiles	Scoped Out at PEA for the Solar Development Site	Construction	Out	The Solar Development Site is of limited suitability to support reptiles. The majority of grassland habitat were of relatively short agricultural use and there were limited scrublands and woodland habitat to provide sheltering and foraging habitat. Also notable is the very high density of pheasants across the Solar Development Site. While this does not preclude the presence of reptiles on-site, presence of such density pheasants acts as a significant limiting factor, due to predation.
		Operation	Out	
		Decommissioning	Out	
Water vole	Scoped Out at PEA for the Solar Development Site	Construction	Out	No direct field signs of water vole such as feeding stations, latrines, or burrows were recorded during the Solar Development Site walkover. The majority of the Solar Development Site is dominated by intensively managed agricultural land and ephemeral water features, conditions generally unsuitable for sustaining water vole populations. Within the Solar Development Site, suitable conditions are largely limited to a few permanently wet ditches. The intermittent and poorly connected nature of most aquatic features on-site (such as inundated ditches and small, ephemeral water bodies) restricts their value for water voles.
		Operation	Out	
		Decommissioning	Out	

10. Water Environment and Flood Risk

10.1 Introduction

- 10.1.1.1 This section outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in **Section 2: Site Description and the Proposed Development** in respect of the water environment and in relation to flood risk.
- 10.1.1.2 It sets out the receptors of relevance, and the approach to the assessment of the Proposed Development's impacts and effects on the water environment and flood risk during construction, operation and decommissioning.
- 10.1.1.3 The following aspects have been considered as part of the scope and methodology for the water environment and flood risk scoping assessment:
- surface water;
 - groundwater;
 - compliance with the Water Environment Regulations (WER)/Water Framework Directive (WFD);
 - water resources; and
 - flood risk.
- 10.1.1.4 This section is supported by the following figures:
- **Figure 2-1: Environmental Constraints – Solar Development Site;**
 - **Figure 2-2: Environmental Constraints – Solar Development Site and Grid Cable Route Search Area;**
 - **Figure 10-1: Surface waterbodies and their attributes; and**
 - **Figure 10-2: Surface water flood risk.**

10.2 Study Area and Data Sources

10.2.1 Desk-top sources used

- 10.2.1.1 The water environment and flood risk baseline conditions have been determined by a desk study of available information, and various other online data sources including:
- British Geological Survey (BGS) geological mapping available via the online GeoIndex viewer¹⁶³
 - Defra flood risk¹⁶⁴;
 - Environment Agency Flood Risk Maps¹⁶⁵;
 - Defra's Multi-agency geographical information for the countryside website (MAGIC) map¹⁸;
 - National River Flow Archive and UK Centre for Ecology and Hydrology¹⁶⁶;
 - WER/WFD Status classification data for surface water and groundwater water bodies¹⁶⁷;
 - BGS Lexicon of Named Rock Units¹⁶⁸;
 - Defra hydrogeology data explorer¹⁶⁹;
 - RCC Local Flood Risk Management Strategy¹⁷⁰; and

- Joint Lincolnshire Flood Risk and Water Management Strategy 2019-2050¹⁷¹.

10.2.2 Study area

- 10.2.2.1 The water environment scoping study area is defined by the Site plus a 1km buffer, as shown on **Figure 10-1: Surface waterbodies and their attributes**.
- 10.2.2.2 The study area will be reviewed and, as appropriate, refined for the assessment and reported in the ES. The 1km study area was selected based on professional judgement of the potential impacts and pathways related to the project. The study area will be reviewed as the design develops to take into account any activities which have the potential to impact water resources at greater distance (such as dewatering or discharges), if required. The final study area will ensure that all receptors that are potentially in hydraulic continuity with the Proposed Development are included (such as downstream receptors and wider flood risk areas).

10.3 Planning Policy Context and Guidance

10.3.1 Legislation

- 10.3.1.1 Legislation relevant to the Proposed Development in regard to the water environment is outlined below:
- Environment Act 2021²²;
 - The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017;
 - Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019¹⁷²;
 - Environmental Permitting (England and Wales) Regulations 2016¹⁷³;
 - Flood and Water Management Act 2010¹⁷⁴;
 - Water Resources Act 1991¹⁷⁵;
 - Land Drainage Act 1991¹⁷⁶; and
 - Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, as amended.

10.3.2 Planning Policy

- 10.3.2.1 Policies relevant to the Proposed Development in regard to the water environment are outlined below. Local planning policies relevant to this topic will be identified in the ES that accompanies the Application.

National Policy:

- Overarching NPS for Energy (EN-1) (2024);
- Draft Overarching NPS for Energy (Draft EN-1) (2025);
- NPS for Renewable Energy Infrastructure (EN-3) (2024);
- Draft NPS for Renewable Energy Infrastructure (Draft EN-3) (2025);
- NPS for Electricity Networks Infrastructure (EN-5) (2024);
- Draft NPS for Electricity Networks Infrastructure (Draft EN-5) (2025);
- NPPG (2024); and
- NPPF (2024).

10.3.3 Other Guidance

- 10.3.3.1 Standards and guidance relevant to the Proposed Development in regard to the water environment and flood risk are listed below:
- Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive⁴⁹;
 - The Planning Practice Guidance – Flood Risk and Coastal Change¹⁷⁷;
 - CIRIA (2023) Environmental good practice on site (fifth edition) (C741)¹⁷⁸;
 - The SuDS Manual¹⁷⁹;
 - Environment Agency (2022) Flood risk assessments: climate change allowances¹⁸⁰;
 - EA Pollution Prevention Guidance (PPG) notes (PPG1, PPG5, PPG8 and PPG21)¹⁸¹; and
 - Highways England (2020) Design Manual for Roads and Bridges (DMRB) LA113 Road Drainage and the Water Environment¹⁸².

Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table

- 10.3.3.2 The Planning Inspectorate provides non-statutory guidance on the scope of NSIP solar projects. It proposes the following:
- For ground and surface water quality: that information is included to identify water receptors and the anticipated impact pathways. This is discussed further within **Sections 10.5: Baseline Conditions** and **10.6: Potential Impacts and Effects**. Receptors are illustrated on **Figure 10.1: Surface waterbodies and their attributes**.
 - For flood risk: a commitment to provide a comprehensive FRA. A detailed FRA will accompany the DCO application.

10.4 Assessment Methodology

- 10.4.1.1 A desk-based study will be completed using publicly available data and data received from stakeholders through consultation. Building on the analysis undertaken at scoping stage, the desk study will identify and confirm potential water receptors and sensitive areas within the study area, which may include groundwater and surface water dependent features, and private water supplies.
- 10.4.1.2 Data requests to inform the ES will include:
- abstraction licenses;
 - discharge consents;
 - list of hydraulic models in the study area;
 - detailed flood data;
 - additional WER data including water body summer reports;
 - BGS susceptibility to groundwater flooding data;
 - list of private water supplies from RCC, SKDC and LCC; and
 - Internal drainage board (IDB) assets within 1km of the study area.
- 10.4.1.3 A site visit will be carried out in order to ground-truth and expand on the data received during the desk study and to assist in understanding of the existing topography, hydrological and hydrogeological conditions of the study area, and, where possible/required, to address any uncertainty or data limitations. The site visit will include a

photographic survey of each of the key hydrological features/ receptors identified during the desk study.

- 10.4.1.4 Following the site visit, the baseline condition and conceptual understanding of the geology, hydrogeology and hydrology within the Site will be refined before completing the assessment.
- 10.4.1.5 The assessment methodology will involve:
- identification of all key receptors and their sensitivity;
 - identification of the potential impacts of the Proposed Development (during construction, operational and decommissioning phases);
 - identification of proposed mitigation (design and construction);
 - assessment of the significance of any identified likely effects (based on receptor sensitivity and magnitude of impact) considering the embedded/ design mitigation and management plans proposed;
 - identification of any likely residual significant effects; and
 - identification of any likely significant cumulative effects based on the residual effects identified.
- 10.4.1.6 A WER Compliance Assessment will be undertaken to assess the potential impacts of the Proposed Development on the water bodies present within Site and any linked water bodies. This will initially comprise a screening assessment (baseline) and scoping assessment (preliminary).
- 10.4.1.7 Flood risk will be assessed using existing data and information wherever possible, requested from the Environment Agency and IDB. A FRA will be undertaken to qualitatively identify flood risks from all sources, both to the Proposed Development, and from the Proposed Development to other receptors, in accordance with the relevant policy. An outline Drainage Strategy will also be developed.
- 10.4.1.8 It is considered that a separate Hydrogeological Impact Assessment document will not be required, beyond the assessment described within this report which will be reported in the ES. This is due to the nature of the Proposed Development, which is primarily above ground, with any temporary below ground construction works mitigable through best practice measures and management plans which will be outlined in the oCEMP. Equally, at this stage it is assumed that there is no requirement for water abstraction from surface water or groundwater to provide water during construction, operation, or decommissioning phases. The hydrogeological impacts related to drainage, flooding and WER will be covered by ES appendices.

10.4.2 Receptors

- 10.4.2.1 Receptors relevant to the assessment are summarised below:
- surface water bodies (including watercourses);
 - bedrock aquifers within the study area;
 - superficial aquifers within the study area;
 - WER groundwater and surface water bodies within the study area;
 - water dependent environmental designated sites within the study area, shown in **Figure 10.1: Surface waterbodies and their attributes**;
 - Groundwater Dependent Terrestrial Ecosystems (GWDTE) within the study area;

- abstractions (both licensed and private water supplies) and discharges within the study area; and
- other water features identified from OS mapping, including springs, wells, lakes and ponds.

10.4.3 Sensitivity of Receptors

- 10.4.3.1 Whilst other disciplines may consider ‘receptor sensitivity’, receptor importance is considered for the water environment topic. This is because when considering the water environment, the availability of dilution means that there can be difference between the sensitivity and importance of a water body. As an example, a small drainage ditch of low conservation importance and biodiversity with limited other ecological attributes may be very sensitive to impacts, whereas an important regional scale watercourse, may be less sensitive by virtue of its ability to assimilate discharges and physical effects. Irrespective of importance, all controlled waters in England are protected by law from being polluted.
- 10.4.3.2 The importance of the baseline environment has been initially assessed using the criteria defined in Table 10-1. The criteria for evaluation of the importance of receptors has been established based upon available guidance, legislation, statutory designation and/or professional judgement.
- 10.4.3.3 Flood receptors such as property, land or infrastructure, at risk or potential risk of flooding that may be impacted by the Proposed Development (including the Proposed Development itself) will be reviewed against the National Receptors’ Database and associated Ordnance Survey MasterMap products. A vulnerability classification will be identified for each receptor in line with the NPPF.

Table 10-1 Assessment of receptor importance

Environmental importance of a receptor	Receptors
Very High (e.g. International)	Surface water: Watercourse having a WER classification and $Q95 \geq 1.0 \text{ m}^3/\text{s}$. Site protected/designated under European Commission (EC) (SAC, SPA, SSSI, Ramsar site, salmonid water)/Species protected by EC legislation Ecology and Nature Conservation. Licensed surface water abstraction matching water body importance. Groundwater: Principal aquifer providing a regionally important resource and/or supporting a site protected under EC legislation. Ecology and Nature Conservation. Groundwater locally supports designated GWDTE. Source Protection Zone I (inner zone) associated with a Public Water Supply. Flood risk: Essential Civil infrastructure or highly vulnerable development.
High (e.g. National)	Surface water: Watercourse having a WER classification and $Q95 < 1.0 \text{ m}^3/\text{s}$. Species protected under UK legislation (SSSI). Ecology and Nature Conservation. Licensed surface water abstraction. Licensed surface water abstraction matching water body importance. Groundwater: Principal aquifer providing locally important re-source or supporting a river ecosystem. Groundwater supports a GWDTE. Licensed groundwater abstraction. Source Protection Zone (SPZ) I associated with a private water abstraction, SPZ 2 (outer zone) associated with a Public Water Supply. Flood risk: Highly vulnerable development.
Medium (e.g. Regional/ County)	Surface water: Watercourses not having a WER classification and $Q95 > 0.001 \text{ m}^3/\text{s}$. Watercourses with flow observed at survey, watercourses with no

Environmental importance of a receptor	Receptors
	other information known. Licensed surface water abstraction matching water body importance. Ponds or lakes with fishing or recreational usage activity. Groundwater: Aquifer providing water for agricultural or industrial use with limited connection to surface water. Secondary Aquifers, unlicensed abstractions, Source Protection Zone III (total catchment). Flood risk: Less vulnerable development.
Low (e.g. Local)	Surface water: Watercourses not having a WER classification and Q95 $\leq 0.001\text{m}^3/\text{s}$, or confirmed to have no flow at site survey. Licensed surface water abstraction matching water body importance. Ponds or lakes with no recreational usage. Groundwater: Unproductive strata. Flood risk: Water compatible development.

10.4.4 Magnitude of Impact

10.4.4.1 Table 10-2 summarises the potential magnitude of any construction or operation impact on the receptor, based on the DMRB LA113¹⁸² guidance.

Table 10-2: Magnitude of impact

Magnitude of Impact	Environmental Impact	Examples
Major	Negative: Loss of an attribute and / or quality and integrity of an attribute. Positive: Creation of a new attribute or major improvement in quality of an attribute.	Negative: Increase in peak flood level* (> 100mm); deterioration in surface water ecological or chemical WER element status or groundwater qualitative or quantitative WER element status. Positive: Creation of additional flood storage and decrease in peak flood level* (> 100mm); increase in productivity or size of fishery; improvement in surface water ecological or chemical WER element status; improvement in groundwater qualitative or quantitative WER element status.
Moderate	Negative: Loss of part of an attribute or decrease in integrity of an attribute. Positive: Moderate improvement in quality of an attribute.	Negative: Increase in peak flood level* (> 50mm); measurable decrease in surface water ecological or chemical quality or flow with potential for deterioration in WER element status. Reversible change in the yield or quality of an aquifer, such that existing users are affected, with potential for deterioration in WER element status. Positive: Creation of flood storage and decrease in peak flood level* (> 50mm); measurable increase in surface water ecological or chemical quality or flow with potential for WER element status to be improved. Measurable increase in the yield or quality of an aquifer, benefiting existing users, with potential for WER element status to be improved.
Minor	Negative: Measurable change to the integrity of an attribute. Positive: Measurable increase, or reduced risk of negative effect to an attribute.	Negative: Increase in peak flood level* (> 10mm); measurable decrease in surface water ecological or chemical quality or flow; decrease in yield or quality of aquifer, not affecting existing users or changing any WER element status. Positive: Creation of flood storage and decrease in peak flood level* (> 10mm); measurable increase in surface water ecological or chemical quality; increase in yield or quality of aquifer not

Magnitude of Impact	Environmental Impact	Examples
		affecting existing users or changing any WER element status.
Negligible	Impacts which are beneath the level of perception, within normal bounds of variation or within the margin of forecasting error.	Negligible change to peak flood level* (< +/- 10mm); discharges to watercourse or changes to an aquifer which lead to no change in the attribute's integrity.
Neutral	Neutral effects are predicted where the proposal is unlikely to alter the present or future baseline situation.	No change to peak flood level*, discharges to watercourse or changes to an aquifer which have no appreciable effect.
*Peak flood level for floods up to and including a 0.5% annual probability event, including climate change, as appropriate. Where access or egress routes are affected, the magnitude of the impact will be defined by the change in the Flood Hazard Rating as defined in Defra/EA report FD2320 ¹⁸³ .		

10.4.5 Significance of Effects

10.4.5.1 By combining the magnitude of impact (or change) and the sensitivity (value) of each receptor, an assessment will be made of the likely significance of effect, considering the possibility and nature of mitigation. The resultant effects may be either negative (adverse), positive (beneficial) or neutral, depending on the nature of the impact. The significance of effect upon the receptor will be assessed using the significance matrix in Table 10-3.

Table 10-3: Matrix for assessment of significance

		Magnitude of Impact				
		Major	Moderate	Minor	Negligible	Neutral
Importance of resource	Very High	Major	Major	Major	Moderate/ Minor	Neutral
	High	Major	Major	Moderate	Minor	Neutral
	Medium	Major	Moderate	Minor	Negligible	Neutral
	Low	Moderate	Minor	Negligible	Negligible	Neutral
	Negligible	Minor	Negligible	Negligible	Negligible	Neutral

10.4.5.2 Moderate or Major effects are generally considered significant in EIA terms, and Negligible or Minor are not significant. Significance conclusions for each residual effect will seek to incorporate, as far as possible, confirmed design and mitigation measures.

10.4.6 Additional Assessments

10.4.6.1 The water resources chapter of the ES will be supported by the additional assessments outlined below. The scope of these assessments will be agreed with the relevant stakeholders.

WER Compliance Assessment

10.4.6.2 The WER Compliance Assessment will be undertaken to assess the potential impacts of the Proposed Development on the immediate water bodies present at the Site and any linked water bodies. This will be undertaken in line with the latest guidance on the requirements of the WER in relation to NSIP applications.

- 10.4.6.3 WER Compliance Assessments typically comprise a stepped process undertaken in parallel with the design development for a proposed scheme. This includes the following key stages: screening (baseline) assessment, scoping (preliminary) assessment; detailed impact assessment (where required); and the application of Regulation 19 derogation (where/if deemed applicable).
- 10.4.6.4 A WER screening and scoping assessment will be undertaken to:
- collate the latest WER baseline status and status objectives information available for the relevant WER water bodies that may be affected by the Proposed Development;
 - identify the relevant construction activities, permanent components and decommissioning activities associated with the Proposed Development that have the potential to affect the WER water bodies at the Site and any latest associated embedded design and construction/ decommissioning phase mitigation measures;
 - undertake a high-level preliminary scoping assessment to identify the likely effects of the Proposed Development on the current status and status objectives of the relevant water bodies and any associated risks of non-compliance with WER objectives;
 - identify any additional construction/ decommissioning and design measures deemed necessary to mitigate the risk of non-compliance, as well as any additional mitigation and potential enhancement opportunities; and
 - provide recommendations for any further detailed baseline and impact assessments that are deemed required in parallel with the forward detailed design stage of the Proposed Development.

Flood Risk Assessment and Drainage Strategy

- 10.4.6.5 Given the extent of the Proposed Development and potential interaction with areas of flood risk, a flood risk assessment process is proposed to identify the design and mitigation measures that should be considered to avoid, reduce or mitigate any increased flood risk.
- 10.4.6.6 The production of an FRA will be undertaken in accordance with the NPS EN-1 which stipulates its requirements, alongside guidance within NPS EN-3, the NPPF and associated Flood Risk and Coastal Change guidance¹⁷⁷. This is both to ensure the Proposed Development itself is designed to be safe and resilient to flood risk, as well as ensuring that the Proposed Development does not increase flood risk to neighbouring receptors.
- 10.4.6.7 The FRA will demonstrate the application of the Sequential Test, which steers development into areas of lowest flood risk. It is assumed at this stage that the Proposed Development would be classed as ‘Essential Infrastructure’ under the vulnerability classification and therefore could subsequently require an Exception Test if any critical infrastructure is to be located in Flood Zone 3. Currently, the study area for the Grid Cable Route Search Area includes areas of Flood Zone 3, which will be taken into account in the design of the Proposed Development.
- 10.4.6.8 The Exception test would seek to demonstrate that the Proposed Development’s sustainability benefits to the community would outweigh the flood risk, that the Proposed Development would be safe for its lifetime taking into account the vulnerability of users (e.g. employees or members of the public using PRoW), without

increasing flood risk elsewhere and, where possible, would reduce flood risk overall.

- 10.4.6.9 The FRA scope will be agreed with key stakeholders (including the Environment Agency and the Lead Local Flood Authority (LLFA)) as the flood risk from surface water, fluvial and groundwater sources, together with the infrastructure design of the Proposed Development components, is further developed.
- 10.4.6.10 An outline Drainage Strategy will be prepared as part of the FRA that demonstrates the appropriate management of runoff from the Proposed Development.

10.5 Baseline Conditions

10.5.1 Existing baseline

Land Use and Topography

- 10.5.1.1 The Site currently consists predominately of arable farmland, with the A1 (Great North Road) bisecting the Solar Development Site. As identified in **Section 2.1: Site Description**, the study area includes several small villages and towns, with those closest to the Solar Development Site being Pickworth and Great Casterton and a range of settlements located within proximity to the Grid Cable Route Search Area. Outside of these settlements, land use within the study area is generally a mosaic of arable farmland interspersed by small patches of woodland with several small drains and ponds scattered across the study area. The River Gwash is located approximately 200m to the south of the Solar Development Site, and crosses the Grid Cable Route Search Areas.
- 10.5.1.2 The topography is gently undulating, ranging from approximately 60 to 90m above ordnance datum (AOD) across the Solar Development Site. Areas of lower elevation are present within the Grid Cable Route Search Area, with low points of approximately 30m AOD along the River Gwash.

Surface Water

- 10.5.1.3 Watercourses within the study area are shown in **Figure 10-1: Surface waterbodies and their attributes** and watercourses that intersect the Site are listed in Table 10-4.

Table 10-4: Watercourses within the study area

Name	Type	Location within the Site and study area
River Gwash	Main river	Crosses or intersects the Southern Grid Cable Route Search Area at two locations.
River Welland	Main river	Approximately 120m south of the Southern Grid Cable Route Search Area, near Tallington.
The Tham	Main river	Crosses the Northern Grid Cable Route Search Area.
West Glen River	Main river	Crosses the Northern Grid Cable Route Search Area.
Holywell Brook	Main river	Crosses the Northern Grid Cable Route Search Area.
Unnamed tributary of the West Glen River (1)	Ordinary watercourse	Crosses the Northern Grid Cable Route Search Area.
Unnamed tributary of the West Glen River (2)	Ordinary watercourse	Located within 10m of the Middle Grid Cable Route Search Area.

Name	Type	Location within the Site and study area
North Brook	Ordinary watercourse	Located 260m west of the Solar Development Site.

10.5.1.4 There are no river flow or level gauging stations within the Site. The nearest Environment Agency gauging station on the River Gwash is at Ryhall (station number 31006), which is located approximately 4.3km south-east of the Solar Development Site. Annual mean flow at this station is 0.695m³/s with no data regarding river levels at time of writing. The flow that is exceeded 95% of the time (Q95) is 1.65 m³/s¹⁸⁴.

Groundwater

10.5.1.5 The bedrock geology in the study area comprises 10 groups, across five periods, shown in Table 10-5.

Table 10-5: Generalised geology of the region, typical thickness, descriptions and aquifer classification of each major group.

Period	Formation / Member	Description	Typical thickness (m)
Callovian Age	Kellaways Clay Member	Silicate mudstone, grey, commonly smooth in basal part, but more generally silici-silty or silici-sandy, locally with thin beds of siltstone and sandstone, and nodules of argillaceous limestone.	0 - 50
Callovian Age	Kellaways Sand Member	Silicate sandstone and silicate siltstone, pale grey, calcareous cemented, with interbeds of sandy and silty mudstone. Sandstone/siltstone generally weakly cemented, but locally strongly cemented, typically into 'doggers'.	0 - 10
Callovian Age	Oxford Clay Formation	Silicate-mudstone, grey, generally smooth to slightly silty, with sporadic beds of argillaceous limestone nodules.	50 - 70
Bathonian Age Callovian Age	Cornbrash Formation	Limestone, medium- to fine-grained, predominantly bioclastic wackestone and packstone with sporadic peloids; generally and characteristically intensely bioturbated and consequently poorly bedded, although better bedded, commonly somewhat arenaceous units occur in places, particularly in the upper part. Generally bluish grey when fresh, but weathers to olive or yellowish brown. Thin argillaceous partings or interbeds of calcareous mudstone may occur.	0 - 10.5
Bathonian Age	Blisworth Clay Formation	Silicate-mudstone, grey, commonly variegated purplish red, yellow and green, poorly bedded to blocky. Commonly contains fossil rootlets and sideritic ironstone nodules, and locally with impersistent beds and lenses of argillaceous limestone including (mainly in the south) shell fragmental wackestones, packstones and grainstones, and (mainly in the north) sandstone. Mudstone weathers to highly plastic clay.	2 - 4
Bathonian Age	Blisworth Limestone Formation	Pale grey to off-white or yellowish limestones with thin marls and mudstones, fossiliferous, bioturbated peloidal, ooidal and shell-fragmental more-or-less argillaceous packstones and wackestones, subordinate cross-bedded ooidal shell-fragmental grainstones: fauna may include rhynchonellids particularly in the lower part in the south.	6 - 7
Bajocian Age Bathonian Age	Rutland Formation	Interpreted as a succession of up to seven shallowing upward, essentially delta-type rhythms, comprising ideally of a grey marine mudstone passing up into non-marine mudstone and siltstone, with a greenish-grey rootlet bed at the top. The basal beds comprise mainly fluvial and lacustrine sandstones, designated the Stamford Member in the south, passing north in central	8 - 12

Period	Formation / Member	Description	Typical thickness (m)
		Lincolnshire into the Thorncroft Sand Member. Subordinate sandstone beds occur higher in the sequence locally, as well as typically shelly and shell-detrital marine limestones and calcareous mudstones, notably in the mid part, the Wellingborough Limestone Member, in Northamptonshire.	
Bajocian Age	Lower Lincolnshire Limestone Member	Limestones, dominated by low-energy calcilutite, and peloidal wackestone and packstone. Commonly includes sandy limestone or calcareous sandstone in basal part (locally known as Collyweston Slate) and contains substantial units of mudstone, particularly from the Lincoln area northwards.	0 - 20
Bajocian Age	Upper Lincolnshire Limestone Member	Limestone, overwhelmingly dominated by high-energy ooidal and shell fragmental grainstones, but includes secondarily recrystallized and micritized lithologies.	0-15
Aalenian Age	Northampton Sand Formation	Sandy, berthierine-ooidal and sideritic ironstone, greenish grey where fresh, weathering to brown limonitic sandstone, typically displaying a box-stone structure. The basal part, is commonly muddy and less ferruginous. The uppermost beds are generally more or less ferruginous sandstone. The unit includes lenses of mudstone and limestone in places, and contains a fairly abundant marine fauna of bivalves, brachiopods and ammonites, which are not generally evident in weathered sections.	4 - 8

10.5.1.6 The superficial geology in the study area comprises five groups, across three periods, shown in Table 10-6.

Table 10-6: Generalised superficial geology of the region and aquifer classification.

Period	Group	Lithological Description
Mid Pleistocene	Till, Mid Pleistocene	Diamicton. 'Mid Pleistocene' or of uncertain pre-Devensian age from Cromerian to Oxygen Isotope Stage 6.
Quaternary Period	Head – Clay, silt, sand and gravel	Head is poorly sorted and poorly stratified, angular rock debris and/or clayey hillwash and soil creep, mantling a hillslope and deposited by solifluction and gelifluction processes. Solifluction is the slow viscous downslope flow of waterlogged soil and other unsorted and unsaturated superficial deposits. The term gelifluction is restricted to the slow flow of fluidized superficial deposits during the thawing of seasonally frozen ground. The flow is initiated by meltwater from thawing ice lenses. Polymict deposit: comprises gravel, sand and clay depending on upslope source and distance from source. Locally with lenses of silt, clay or peat and organic material.
Cromerian Stage	Glaciofluvial deposits, Mid Pleistocene	Sand and gravel.
Quaternary Period	River Terrace Deposits, 1	Sand and gravel, locally with lenses of silt, clay or peat.
Quaternary Period	Alluvium	Alluvium is a general term for clay, silt, sand and gravel. It is the unconsolidated detrital material deposited by a river, stream or other body of running water as a sorted or semi-sorted sediment in the bed of the stream or on its floodplain or delta, or as a cone or fan at the base of a mountain slope. Synonym: alluvial deposits. Normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel. A stronger, desiccated surface zone may be present.

10.5.1.7 Hydrometric monitoring data available on Hydrology Data Explorer¹⁶⁹ shows that

within the study area, there are five Environment Agency groundwater level monitoring stations. Data from these monitoring stations indicate that groundwater levels in the study area are generally between 15.5 and 59.3 mAOD and tend to fluctuate seasonally. There are no water quality monitoring stations within the study area.

- 10.5.1.8 The Environment Agency aquifer designations within the study area are listed below within Table 10-7.

Table 10-7 Aquifer designations

Geology	Formation / Member	Aquifer classification
Bedrock	Kellaways Clay Member	Unproductive
	Kellaways Sand Member	Unproductive/ Secondary A
	Oxford Clay Formation	Unproductive
	Cornbrash Formation	Unproductive/ Secondary A
	Blisworth Limestone Formation	Secondary B/ Principal
	Blisworth Clay Formation	Unproductive/ Secondary A
	Rutland Formation	Secondary B/ Principal
	Lower Lincolnshire Limestone Member	Secondary B/ Principal
	Upper Lincolnshire Limestone Member	Secondary B/ Principal
	Northampton Sand Formation	Secondary B/ Principal
Superficial	Till, Mid Pleistocene - Diamicton	Secondary (Undifferentiated)
	Head – Clay, silt, sand and gravel	Secondary (Undifferentiated)
	Glaciofluvial deposits, Mid Pleistocene	Secondary A
	River Terrace Deposits, 1	Secondary A
	Alluvium	Secondary A
<u>Aquifer classification definitions:</u> Principal aquifers: provide significant quantities of drinking water, and water for business needs. They may also support rivers, lakes and wetlands. Secondary A aquifers: comprise permeable layers that can support local water supplies and may form an important source of base flow to rivers. Secondary B aquifers: mainly lower permeability layers that may store and yield limited amounts of groundwater through characteristics like thin cracks (called fissures) and openings or eroded layers. Secondary (undifferentiated): aquifers where it is not possible to apply either a Secondary A or B definition because of the variable characteristics of the rock type. These have only a minor value. Unproductive strata: largely unable to provide usable water supplies and are unlikely to have surface water and wetland ecosystems dependent on them.		

- 10.5.1.9 The Soilscape map viewer¹⁸⁵ describes the soils on the Solar Development Site as ‘Shallow lime-rich soils over chalk or limestone’. These are reported to have lime-rich fertility and be particularly vulnerable to leaching of nitrate and pesticides to groundwater; surface capping and erosion of chalk soils on steeper slopes under cereals is linked with eutrophication and silting of chalk streams and their gravel spawning beds.

- 10.5.1.10 OS mapping shows there are no springs within the Solar Development Site with the closest located approximately 270m north of the Solar Development Site. There are a total of five springs within the 1km buffer of the Solar Development Site. There are three springs within 1km of the Southern Grid Cable Route Search Area with the closest

located approximately 350m south-west. There are two springs within 1km of the Middle Grid Cable Route Search Area with the closest located approximately 390m south-west. There are 10 springs located within 1km of the Northern Grid Cable Route Search Area. Two of these springs are located within the Northern Grid Cable Route Search Area; one near Castle Bytham and another located near Couthorpe Road.

Water Environment Regulations (WER)

- 10.5.1.11 The European Union Water Framework Directive (2000/60/EC) (WFD) was introduced in 2000 and was transposed into UK law by The Water Environment (Water Framework Directive) (England and Wales) Regulations (amended 2017) (herein referred to as the WER). The Environment Agency is the competent authority responsible for delivering the WFD in England. The WER aims to protect and enhance the quality of the water environment. It takes a holistic approach to the sustainable management of water by considering the interactions between surface water, groundwater and water-dependent ecosystems. Under the WER, ‘water bodies’ are the basic management units and are defined as all or part of a river system or aquifer. These water bodies form part of a larger River Basin District (RBD), for which River Basin Management Plans (RBMP) are developed and environmental objectives are set. These RBMP are produced every six years, in accordance with the river basin management planning cycle. The WER requires the status classification of the condition of all surface water and groundwater bodies and the setting of objectives for maintaining or improving conditions so that water bodies reach and/ or maintain ‘good’ status or higher (unless exceptions are identified).
- 10.5.1.12 The Site and study area fall within the Welland Management Catchment within the Anglian RBMP¹⁸⁶ and the Anglian Ground Water Management Catchment within the Anglian RBMP¹⁸⁷, as defined under the WER. The status classifications, objectives and programme of measures derived by the Environment Agency for water bodies located within the study area are outlined within the Cycle 3 Anglian RBMP.
- 10.5.1.13 There are four WFD surface water bodies located within the study area. The surface water bodies within the study area and their status are shown in Table 10-8

Table 10-8: WFD surface water bodies

Water Body	Management catchment	Water body type	Hydromorphological designation	Ecological status (2022)
Gwash Water Body (GB105031050610) ¹⁸⁸	Anglian RBMP	River	Not designated artificial or heavily modified	Moderate (2019)
West Glen - conf West Glen tributary to conf East Glen River Water Body (GB105031050770) ¹⁸⁹ .	Anglian RBMP	River	Not designated artificial or heavily modified	Moderate
West Glen – Upper Water Body (GB105031055510) ¹⁹⁰	Anglian RBMP	River	Not designated artificial or heavily modified	Poor
The Tham Water Body (GB105031050650) ¹⁹¹	Anglian RBMP	River	Not designated artificial or heavily modified	Moderate

- 10.5.1.14 There are two WFD groundwater bodies located within the study area. The groundwater bodies within the study area and their status are shown on Table 10-9.

Table 10-9: WFD groundwater bodies

Water Body	Management catchment	Water body type	Overall status (2019)
Welland Mid Jurassic unit groundwater body (GB40501G445300) 192	Anglian RBMP	Groundwater body	Good
Welland Limestone Unit A Water Body (GB40501G445900) 193	Anglian RBMP	Groundwater body	Poor

10.5.1.15 In addition to the WFD watercourses, there are several undesignated tributaries of these water bodies present within the study area, along with ditches and ponds.

10.5.1.16 Additional information including the data that supports these classifications will be requested from the Environment Agency and included in the ES.

Water Resources

10.5.1.17 Drinking Water Safeguard Zones (DWSgZ) are established around public water supplies where additional pollution control measures are considered to be needed; these are designated by the Environment Agency. There are no DWSgZ located within 1km of the Solar Development Site or Grid Cable Route Search Areas. The closest surface water DWSgZ is the River Welland and Rutland Water DWSgZ located approximately 1.5km south-west of the Middle Grid Cable Route Search Area and Cringle Brook located approximately 4km north-west of the Northern Grid Cable Route Search Area.

10.5.1.18 SPZ are defined by the Environment Agency around large and public potable groundwater abstraction sites. The purpose of SPZ is to provide additional protection to safeguard drinking water quality through constraining the proximity of any activity that may impact upon a drinking water abstraction. The following subdivisions are defined within SPZ:

- Zone 1: This zone is defined by a travel time of 50 days or less from any point within the zone at, or below, the water table. Additionally, the zone has as a minimum a 50m radius.
- Zone 2: This zone is defined by the 400-day travel time from a point below the water table. Additionally, this zone has a minimum radius of 250 or 500m, depending on the size of the abstraction.
- Zone 3: This zone is defined as the total area needed to support the abstraction or discharge from the protected groundwater source.

10.5.1.19 The Northern Grid Cable Route Search Area, Southern Grid Cable Route Search Area and the north of the Solar Development Site is located within SPZ 3. The eastern section of the Southern Grid Cable Route Search Area located within SPZ 2.

10.5.1.20 Nitrate Vulnerable Zones (NVZ) are areas designated by Defra as being at risk from agricultural nitrate pollution. The entire Solar Development Site and Grid Cable Route Search Area is located within the River Welland NVZ.

10.5.1.21 Information on water quality, pollution incidents, licensed and unlicensed water abstractions, and water activity permits (i.e. discharges) for the Solar Development Site and Grid Cable Route Search Area will be obtained from the Environment Agency and presented in the ES that accompanies the Application.

Environmental Designations

- 10.5.1.22 As shown in **Figure 10.1: Surface waterbodies and their attributes**, there are two groundwater dependent terrestrial ecosystems within the study area, including SSSI:
- Tickencote Marsh SSSI, located 860m south-west of the Solar Development Site; and
 - Grimsthorpe Park SSSI, located 870m east of the Northern Grid Cable Route Search Area.
- 10.5.1.23 There are no SAC, Ramsar, National Nature Reserves (NNR), or Local Nature Reserves (LNR) within the Site. The closest International / European statutory designated site within the study area is Rutland Water Ramsar, located approximately 3.5km south-west of the Solar Development Site.

Flood risk from all sources

- 10.5.1.24 According to published sources, flood risk from all sources for the Proposed Development is summarised in Table 10-10 below.

Table 10-10: Flood risk from all sources

Flood Risk Source	Comments
Fluvial	The Solar Development Site is entirely located within Flood Zone 1 (land assessed as having a less than 1 in 1000 annual probability of river or sea flooding). The Grid Cable Route Search Areas are predominantly within Flood Zone 1 but is within Flood Zone 2 (<0.1% AEP) and 3 (>1% AEP) in isolated locations where the Grid Cable Route Search Areas cross rivers. Fluvial flood risk is illustrated on Figure 10.2: Surface water flood risk .
Surface Water	The Proposed Development is primarily located within an area of no to low change of surface water flooding (between 0.1% and 1% chance each year). The central location of the Solar Development Site has sporadic presence of medium chance (between 1% and 3.3% chance each year) and high chance of surface water flooding (more than 3.3% chance each year) ¹⁹⁴ . Surface water flood risk across the Site is illustrated on Figure 10.2: Surface water flood risk..
Groundwater	There is considered to be low risk of groundwater flooding in the study area. This will be reviewed at the assessment stage when further information is available.
Sewers	Sewer flooding is considered to be low risk but sewer flooding will be reviewed at the assessment stage when further information is available.
Reservoirs	The River Gwash and some of its immediate riparian margin as it crosses through the Site (within the Central and Southern Grid Cable Route Search Areas) is within the risk of flooding from a reservoir breach. The Solar Development Site is not at risk from reservoir flooding ¹⁹⁵ .
Tidal	There is no tidal influence in the study area.

10.5.2 Future baseline

- 10.5.2.1 As described in **Section 6: Climate Change Resilience**, UKHad data was reviewed for various historic climate data and projections to provide context for the future baseline. The future of the Proposed Development is likely to experience:
- An increase in the occurrences and intensity of drought events - Summers are projected to be noticeably drier with a 18% reduction in average summer precipitation compared to the baseline.

- Heatwaves are projected to increase from an average of 0.6 heatwaves per year in the historical baseline, to 5 heatwaves per year in the future. Mean summer temperatures are also projected to increase by 4.5°C, with the hottest part of the day in summer months projected to be 6°C warmer compared to the baseline. The number of days reaching above 25 °C is projected to increase more than 5-fold.
- Increases in flood risk - winters are anticipated to be noticeably wetter in the future with average winter precipitation increasing by approximately 22% compared to the baseline, in addition to a 20% increase in the number of heavy rainfall days. Refer to **Section 6: Climate Change Resilience**, for baseline (1980 to 2010) and projected data (2050 to 2080) the Proposed Development is likely to experience.

10.5.2.2 The UK Climate Impact Programme 2018 (UKCP18)¹⁹⁶ predicts the following changes over the next several decades (up to 2099):

- temperatures will continue to increase, with larger temperature increases estimated in summers;
- the average summer rainfall rate is estimated to decrease;
- the average winter rainfall rate is estimated to increase; and
- an overall increase in extreme weather events.

10.5.2.3 It is considered that these predicted changes to climate are likely to lead to greater variability in groundwater levels, with prolonged periods of high and low groundwater levels relating to the variability of rainfall and recharge.

10.5.2.4 For flood risk, future climate change will increase the likelihood of extreme storm events. Planning Policy Guidance for flood risk and coastal change¹⁷⁷ outlines the required climate allowances to be applied to either peak river flows or to peak rainfall intensity (depending on the nature of the analysis). The allowances that will need to be applied are determined by the location (Anglian Management Catchment), the flood zone the development is in, and the vulnerability classification of the Proposed Development. These will be defined at ES stage of the assessment.

10.6 Potential Impacts and Effects

10.6.1 Construction

10.6.1.1 Specific construction activities with the potential to impact the water environment include:

- earthworks and site clearance activities such as stripping of topsoil, trenching, storage and capping of soil;
- underground cable installation (cable plough or trenching) and reinstatement works;
- piling and erection of solar PV module support structures;
- excavation and construction of foundations and piling for the substations, if required;
- construction of laydown areas and construction compounds;
- construction of concrete pad foundation for inverters, transformers and BESS;
- HDD (or other trenchless methods) under or in close proximity to watercourses, where utilised; and
- construction vehicles travelling to and from the Proposed Development.

10.6.1.2 During construction the following adverse impacts may occur:

- physical loss of land drains that are present within the Site and associated impacts to hydro morphological condition and aquatic habitat quality, as a result of construction activities;
- changes to surface runoff patterns and land drainage as a result of construction activities, resulting in altered surface water flows and water levels within the Site and downstream, including flood risk;
- reductions in water quality and aquatic habitat quality of surface water bodies present within the Site, or downstream water bodies, as a result of ground disturbance and associated sediment releases during construction activities;
- reductions in water quality and aquatic habitat quality of surface water bodies as a result of sediment release and disturbance from the construction;
- subsoil compaction and reduced infiltration, resulting in increases in localised overland flooding and reduced recharge to groundwater;
- impacts on local hydrogeology and groundwater resources including any private water supplies and licensed abstractions. Changes to groundwater levels, flows and quality arising from construction activities;
- reductions in water quality and increased turbidity of groundwater, resulting from the groundwork and associated sediment releases during construction activities;
- reductions in water quality of surface water bodies or groundwater bodies present within the Site, as a result of accidental release of contaminants (such as fuel oils and lubricants from construction plant, vehicles and traffic movements – accidental spillage during refuelling and/or leakage from storage; spillage of cement, concrete material and alkaline wash waters, wheel washing, waste storage);
- increased risk of flooding within the Site and to neighbouring land due to potential changes in nature and extent of the floodplain, including displacement or changes in floodplain storage; and
- potential increased exposure to flood risk during the construction phase by introducing new receptors in areas potentially at risk of flooding, i.e. construction infrastructure and workers.

10.6.1.3 At this stage it is assumed that there is no requirement for water abstraction from surface water or groundwater to provide during construction. Should this position change at ES stage that is provided in the Application, the Applicant would discuss the approach with the relevant consultees.

10.6.2 Operation and Maintenance

10.6.2.1 During the operational phase, the following adverse impacts may occur:

- changes to surface runoff patterns and land drainage, resulting in altered surface water body flows and water levels within the Solar Development Site and downstream;
- physical degradation or loss of surface water bodies present within the Solar Development Site and associated impacts to hydromorphological condition and aquatic habitat quality due to changes to drainage network;
- presence of impermeable structures and surfaces and reduced infiltration, resulting in increases in localised overland flooding and reduced recharge to groundwater;
- deterioration of water quality of surface water bodies and groundwater bodies present within the Solar Development Site as a result of accidental release of contaminants during proposed operation, and traffic accidents/ spillages on new access roads and transmission corridors;

- alteration of groundwater levels and flow paths and consequently to flood risk due to reduced recharge resulting from rainfall captured by solar panels and hardstanding drainage; and
- increased risk of flooding within the Solar Development Site and to property elsewhere due to changes in nature and extent of the floodplain.

10.6.3 Decommissioning

- 10.6.3.1 During the decommissioning phase, potential impacts and effects are anticipated to be comparable with, or likely less than those already identified for construction, as set out above and in Table 10-14.

10.7 Design, Mitigation and Enhancement Measures

10.7.1 Embedded Measures

- 10.7.1.1 The Proposed Development is currently evolving through an environmentally led iterative design process (as described in **Section 2: Site Description and the Proposed Development**). At the outset of this design process the Applicant has set out a series of Design Principles (refer to **Section 2.4: Environmental Design**) which they are seeking to achieve, as far as reasonably practicable, in the design of the Proposed Development.
- 10.7.1.2 Embedded measures can comprise modifications to the design of a scheme made during the pre-application phase that seek to avoid or minimise impacts, that are an inherent part of the design and do not require additional action to be taken. Therefore, embedded measures may comprise, or be informed by, the Design Principles as well as other mitigation measures. Embedded measures are also taken into account in the assessment of the likely significant effects.
- 10.7.1.3 Embedded measures for the Proposed Development relevant to water resources and flood risk are likely to include:
- new crossings of watercourses would be avoided insofar as reasonably practicable, with a preference to re-use existing crossing points and structures wherever possible. Appropriate crossing methods will be confirmed for the ES following reconnaissance surveys to confirm the receptor value of the watercourse and likely impact;
 - where major watercourse crossings are required for the Grid Connection Cables, trenchless techniques will be utilised as far as reasonably practicable i.e. HDD under Main Rivers (other trenchless techniques may also be considered);
 - a minimum 10m offset to be maintained from the bank top of all watercourses from all infrastructure (including fencing) and construction works (other than where these watercourses are to be crossed);
 - SuDS will be provided at source, where practicable, and will be considered in the outline Drainage Strategy that accompanies the ES so that surface water runoff is managed consistently with existing site conditions;
 - internal access tracks will be permeable to allow water to filtrate through and maintain greenfield runoff rates;
 - suitable stand offs (to be determined dependent on construction activities, local conditions and receptors to prevent derogation) from springs, spring catchments or boreholes;

- use of underground cabling methodology that minimises disruption to the ground (e.g. a cable plough which cuts, installs and backfills in one operation);
- use of piling methodology that minimises likelihood of creating pollution pathway to groundwater;
- minimising areas of hardstanding required for laydown and construction compounds; and
- the BESS drainage design will allow for fire-water containment. In the unlikely event of a fire, to avoid the spread of chemicals from fire-fighting foams, apparatus that catch fire would be allowed to burn out. Water sprayed would be directed to fire-water storage areas for suitable disposal.

10.7.2 Management Plans

10.7.2.1 A suite of management plans will be in place for the Proposed Development. Outline versions of these management plans will incorporate standard industry best practice, considered as embedded measures, as well as any further mitigation that is deemed required as a result of the EIA process. These will be submitted with the Application to secure the commitments contained within.

10.7.2.2 Those relevant to the water environment and flood risk include:

- oCEMP;
- oOEMP;
- oBSMP;
- oLEMP; and
- oDEMP.

10.8 Likely Significant Effects

10.8.1 Construction

10.8.1.1 Table 10-11 summarises the likely aspects of the water environment that have the potential to experience significantly effects during the construction phase, and whether they are Scoped In or **Scoped Out** of further assessment.

Table 10-11: Water environment elements relating to construction to be scoped in or scoped out of the EIA

Aspect	Scoped In/ Out	Justification
Surface water quality	Scoped In	Potential for the introduction of contamination and sediment into surface water during construction, and potential impacts to hydraulically connected habitats (e.g. from road drainage or spillages and/ or sediment release).
Surface water quantity	Scoped In	Potential changes to surface water flow and levels within the Site and downstream and to hydraulically connected habitats (e.g. due to new land drains and construction drainage).
Groundwater quality	Scoped In	Potential for the introduction of contamination and sediment into groundwater during construction, and potential impacts to hydraulically connected habitats (e.g. from road drainage or spillages and/or sediment release).
Groundwater quantity	Scoped In	Potential changes to shallow groundwater flow and levels at the Site and downstream and to hydraulically connected habitats (e.g. from trenching and pile installation).

Aspect	Scoped In/ Out	Justification
Water Dependent Terrestrial Ecosystems (WDTEs)	Scoped In	Potential impacts to WDTEs from changes to hydraulically connected surface water and groundwater as a result of construction activities.
Flood Risk and Drainage	Scoped Out	A standalone FRA and outline drainage strategy will accompany the ES and will set out the flood risk to and from the Proposed Development. This is considered sufficient to address the flood risks associated with the Proposed Development.

10.8.2 Operation and maintenance

10.8.2.1 Table 10-12 summarises the likely aspect of the water environment have the potential to be significantly affected during the operation phase, and whether they are Scoped In or **Scoped Out** of further assessment.

Table 10-12: Water environment elements relating to operation to be scoped in or scoped out of the EIA

Aspect	Scoped In/ Out	Justification
Surface water quality	Scoped In	Potential for the introduction of contamination and sediment into surface water during operational use and potential impacts to hydraulically connected habitats (e.g. from road drainage or spillages from general maintenance).
Surface water quantity	Scoped In	Potential changes to surface water flow and levels at the Site and downstream and to hydraulically connected habitats (e.g. due to new land drains and increased areas of hardstanding).
Groundwater quality	Scoped In	Potential for the introduction of contamination and sediment into groundwater during operational use, and potential consequential impacts to hydraulically connected habitats (e.g. from road drainage or spillages).
Groundwater quantity	Scoped In	Potential changes to shallow groundwater flow and levels at the Site and downstream and consequential impacts to hydraulically connected habitats as a result of permanent below ground structures (e.g. piling) and surface structures intercepting recharge (e.g. hardstanding and solar panels).
Water Dependent Terrestrial Ecosystems (WDTE)	Scoped In	Potential impacts to WDTE from changes to hydraulically connected surface water and groundwater during operational use.
Flood Risk and Drainage	Scoped Out	A standalone FRA and outline drainage strategy will accompany the ES and will set out the flood risk to and from the Proposed Development. This is considered sufficient to address the flood risks associated with the Proposed Development.

10.8.3 Decommissioning

10.8.3.1 Table 10-13 summarises the likely aspect of the water environment have the potential to be significantly affected during the decommissioning phase, and whether they are Scoped In or **Scoped Out** of further assessment.

Table 10-13: Water environment elements relating to decommissioning to be scoped in or scoped out of the EIA

Aspect	Scoped In/ Out	Justification
Surface water quality	Scoped In	Potential for the introduction of contamination and sediment into surface water during decommissioning, and potential consequential impacts to hydraulically connected habitats (e.g. from road drainage or spillages).
Surface water quantity	Scoped In	Potential changes to surface water flow and levels within the Site and downstream and consequential impacts to hydraulically connected habitats (e.g. due to changes in surface runoff).
Groundwater quality	Scoped In	Potential for the introduction of contamination and sediment into groundwater during decommissioning, and potential consequential impacts to hydraulically connected habitats (e.g. from road drainage or spillages).
Groundwater quantity	Scoped In	Potential changes to shallow groundwater flow and levels at the Site and downstream and consequential impacts to hydraulically connected habitats.
Water Dependent Terrestrial Ecosystems (WDTEs)	Scoped In	Potential impacts to WDTE from changes to hydraulically connected surface water and groundwater as a result of decommissioning activities.
Flood Risk and Drainage	Scoped Out	A standalone FRA and outline drainage strategy will accompany the ES and will set out the flood risk to and from the Proposed Development. This is considered sufficient to address the flood risks associated with the Proposed Development..

10.9 Assumptions, Limitations and Uncertainties

- 10.9.1.1 The current baseline data for the Site's water environment has been collated using a range of publicly available data and information. The accuracy of the baseline condition assessment is reliant upon the accuracy of the data available from the sources.
- 10.9.1.2 The data will be supplemented with additional data as part of the EIA process. This will include information gathered during a site visit to identify the nature and sensitivity of water receptors (**Section 10.6: Potential Impacts and Effects**).
- 10.9.1.3 The environmental importance and sensitivity of water environmental receptors, the magnitude of potential impacts and the significance level may change during later phases when more information and data becomes available.
- 10.9.1.4 Any third-party information, including the readily available data sources and input from external consultations is to be assumed to be accurate at the time of writing.

10.10 Summary

- 10.10.1.1 A summary of those matters proposed to be Scoped In and **Scoped Out** of the assessment are set out in Table 10-14 below:

Table 10-14: Water Environment elements Scoped In and Out of EIA

Aspect	Phase	Scoped In / Scoped Out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Surface water quality	All	Scoped In	N/A
Surface water quantity	All		
Groundwater quality	All		
Groundwater quantity	All		
Water Dependent Terrestrial Ecosystems	All		
Flood risk and drainage	All	Scoped out	A standalone FRA would be an appendix to the ES.

11. Landscape and Visual Amenity

11.1 Introduction

- 11.1.1.1 This section outlines the scope and methodology for the Landscape and Visual Impact Assessment (LVIA). The LVIA will assess the likely significant effects arising from the construction, operation and decommissioning of the Proposed Development on landscape and visual receptors as described in **Section 2: Site Description and the Proposed Development**.
- 11.1.1.2 There are clear differences between landscape effects and visual effects and the following distinctions have been made:
- **Landscape effects** relate to changes to the landscape as a resource, including physical changes to the fabric or individual elements of the landscape, its aesthetic or perceptual qualities, and landscape character.
 - **Visual effects** relate to changes to existing views of identified visual receptors ('people'), from the loss or addition of features within their view due to the Proposed Development.
- 11.1.1.3 This section is supported by the following figures:
- **Figure 2.1a and 2.1b: Environmental Constraints – Solar Development Site;**
 - **Figure 2.2a and 2.2b: Environmental Constraints – Solar Development Site and Grid Cable Route Search Area;**
 - **Figure 11.1: Published Landscape Character Areas;**
 - **Figure 11.2: Zone of Theoretical Visibility (ZTV) and Proposed Viewpoints – Based on Digital Terrain Model data; and**
 - **Figure 11.3: Zone of Theoretical Visibility (ZTV) and Proposed Viewpoints – Based on Digital Surface Model data.**

11.2 Study area and data sources

11.2.1 Desk-top sources used

- 11.2.1.1 The following desk-top sources have been used to inform the existing baseline conditions of the study area for LVIA including:
- 1:25,000 Ordnance Survey (OS) Open Data Mapping and Aerial Imagery;
 - Google Earth Aerial Imagery;
 - LiDAR Digital Terrain Map – 2m Resolution;
 - LiDAR Digital Surface Map – 2m Resolution;
 - Natural England: National Character Area Profiles¹⁹⁷;
 - South Kesteven Landscape Character Assessment, 2007¹⁹⁸;
 - Rutland Landscape Character Assessment, 2022¹⁹⁹; and
 - Rutland Settlement Landscape Sensitivity Assessment, 2023²⁰⁰.

11.2.2 Surveys undertaken

- 11.2.2.1 An initial site walkover was carried out in May 2025 to appraise the local landscape character and evaluate the extent of views of the Solar Development Site. This fieldwork

also assisted in identifying landscape and visual receptors which could potentially be impacted by the Proposed Development. Future fieldwork will be taken in accordance with the methodology presented in **Section 11.4: Assessment Methodology**.

11.2.3 Study area

- 11.2.3.1 The first stage of defining the study area was informed by a desk study, including the preparation of a computer-generated ZTV. A ZTV is defined in third edition Guidelines for Landscape and Visual Impact Assessment (GLVIA3)²⁰¹ as:
“a map, usually digitally produced, showing areas of land within which, a development is theoretically visible.”
- 11.2.3.2 ZTV do not indicate how much of a development will be visible. The purpose of the ZTV is therefore to:
- identify the theoretical extents of visibility of the Proposed Development, i.e. areas from which it would not be visible and areas from which it could potentially appear in existing views;
 - assist in the identification of the study area;
 - identify areas of landscape and visual receptors likely to be affected by the Proposed Development;
 - identify locations that are representative of the views experienced by visual receptors at different locations within the study area (representative viewpoints); and
 - inform the design, including the extent and type of proposed mitigation.
- 11.2.3.3 Two preliminary ZTV have been modelled using the ‘Viewshed’ tool in ESRI ArcGIS Pro software. A bare earth ZTV was first prepared using digital terrain model (DTM) data with a resolution of 2m. This ZTV represents a worst-case scenario as it does not include features such as existing buildings or vegetation which can screen or filter views. It is based on the maximum parameters of the proposed solar PV modules set out in **Section 2.2: Description of the Proposed Development** and assumes that they would be built out to their full extent and to a height of 4m AGL. An additional ZTV based on the maximum height of BESS within the Solar Development Site is also shown on the same plan, it is based on a height of 4.5m AGL and assumes that BESS could be located anywhere within the Solar Development Site. The location of On-Site Substation(s) has not been confirmed, and these will be modelled in future iterations of the ZTV and presented in the ES. A ZTV has not been modelled for the Grid Cable Route Search Area based on the assumption that there will be no permanent above ground infrastructure visible.
- 11.2.3.4 A second preliminary ZTV was then prepared using a digital surface model (DSM) with a resolution of 2m. This includes surface features including buildings and vegetation. This ZTV treats surface features as solid, when in reality there may be views through vegetation, particularly in winter. This will be verified through fieldwork. The DSM ZTV indicates that there could be a reduced extent of visibility, particularly for views from the north-west, north and north-east where there is substantial woodland cover.
- 11.2.3.5 A review of the ZTV has identified an initial area of search extending to approximately 5km from the Solar Development Site. The results are illustrated in **Figure 11.2 Zone of Theoretical Visibility (ZTV) and Proposed Viewpoints – Based on Digital Terrain Model data** and **Figure 11.3 Zone of Theoretical Visibility (ZTV) and Proposed**

Viewpoints – Based on Digital Surface Model, which shows areas from which the Solar Development Site would theoretically be visible or not visible. An assumed viewing height of 1.7m AGL has been used to simulate the eye level of a person at the top of the range set out in paragraph 6.11 of GLVIA3 to represent the worst-case scenario.

- 11.2.3.6 Fieldwork was undertaken in May 2025 to test the assumptions made through the desk study. This identified further existing features including built development and vegetation, which limit potential landscape and visual interactions with the Proposed Development.
- 11.2.3.7 The desk study and fieldwork carried out to date shows that intervening landform, buildings and vegetation generally limit the extent of views to within 3km of the Solar Development Site. Beyond this distance, significant landscape and visual effects are not likely. This judgement is informed by an understanding of the wider landscape character and views and experience of working on similar solar development projects. For the Grid Cable Route Search Area, a preliminary study area of 500m is proposed, as shown on **Figure 11.1: Published Landscape Character Areas**. Beyond this distance significant landscape and visual effects are not likely due to the temporary nature of effects which would occur during the construction phase and the lack of permanent above ground infrastructure. The study area for the Grid Cable Route Search Area will be refined as the design of the Proposed Development progresses.
- 11.2.3.8 The proposed study area for the LVIA is therefore:
- 3km from the Solar Development Site; and
 - 500m from the Grid Cable Route Search Area.
- 11.2.3.9 The study area for the LVIA is illustrated on **Figure 11.1: Published Landscape Character Areas**. The study area for the Solar Development Site is illustrated on **Figures 11.2: Zone of Theoretical Visibility (ZTV) and Proposed Viewpoints – Based on Digital Terrain Model data** and **Figure 11.3: Zone of Theoretical Visibility (ZTV) and Proposed Viewpoints – Based on Digital Surface Model data**. The geographical extent of the study area proposed is considered appropriate to enable the assessment of potential likely significant landscape and visual effects, in accordance with GLVIA3. The study area may be further refined as more detailed analysis is undertaken and following consultation with local planning authorities and other relevant stakeholders. The justification for its final extent will be set out in the ES.

11.3 Legislation, Planning Policy Context and Guidance

- 11.3.1.1 The legislation, policy and good practice guidance that is relevant to landscape and visual matters and which will be considered within the LVIA includes:

11.3.2 Legislation

- the European Landscape Convention 2004 (ELC)²⁰²;
- Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 No. 572;
- Countryside and Rights of Way (CROW) Act 2000;
- Planning (Listed Building and Conservation Areas) Act 1990;
- Town and Country Planning (Tree Preservation) (England) Regulations 2012²⁰³;
- and

- Hedgerows Regulations 1997¹⁰⁴.

11.3.3 National Policy

11.3.3.1 Planning policies relevant to the Proposed Development in regard to landscape and visual amenity are outlined below. Local planning policies relevant to this topic will be identified in the ES that will accompany the Application.

- Overarching National Policy Statement (NPS) for Energy (EN-1);
- Draft NPS EN-1 (2025);
- NPS for Renewable Energy Infrastructure (EN-3);
- Draft NPS EN-3 (2025);
- NPS for Electricity Networks Infrastructure (EN-5);
- Draft NPS EN-5 (2025); and
- National Planning Policy Framework (NPPF).

11.3.4 Standards and Guidance

11.3.4.1 Standards and guidance relevant to the Proposed Development in regard to landscape and visual amenity are outlined below:

- Landscape Institute and Institute of Environmental Management and Assessment (IEMA) (2013), Guidelines for Landscape and Visual Impact Assessment, 3rd edition²⁰¹;
- Natural England (2014). An Approach to Landscape Character Assessment²⁰⁴;
- Landscape Institute (2021). Assessing landscape value outside national designations, Technical Guidance Note 02/21²⁰⁵;
- Planning Inspectorate (2025). Nationally Significant Infrastructure Projects: Advice on Good Design (2025)³⁹;
- National Infrastructure Commission. Design Principles for National Infrastructure²⁰⁶;
- Project Level Design Principles – Guidance from the National Infrastructure Commission (2024)²⁰⁷;
- Landscape Institute (2024). Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment 2024-01 (2024), Landscape Institute²⁰⁸;
- Landscape Institute (2020). Infrastructure, Technical Guidance Note 04/2020²⁰⁹;
- Ministry of Housing, Communities and Local Government (MHCLG) (2019). Planning Practice Guidance (PPG), Natural Environment (Landscape)²¹⁰;
- Landscape Institute (2019). Visual Representation of Development Proposals, Technical Guidance Note 06/19²¹¹;
- MHCLG (2023). Planning Practice Guidance, Renewable and Low Carbon Energy²¹².
- CPRE The Countryside Charity (2023) Renewable Energy in Rutland A Community Vision; and
- Rutland County Council (2024) Renewable Energy Study Solar PV and Wind Turbine Generator Potential.

Planning Inspectorate Technical Advice Page for Scoping Solar Development.

11.3.4.2 The Planning Inspectorate provides guidance on the scoping of solar projects. For landscape and visual it proposes that lighting should be considered and assessed within the landscape and visual chapter of the ES.

11.4 Assessment methodology

11.4.1 Overview

11.4.1.1 The methodology for the LVIA involves the following stages:

1. Review of published landscape character assessments (LCA), studies, relevant supporting evidence base documents, aerial photography and mapping, and undertake fieldwork to define the baseline and to define the extent of the study area within which there is potential for landscape and visual effects. This has been undertaken to inform the EIA Scoping Report and will be reviewed and updated in the ES.
2. Define the landscape and visual receptors and describe the landscape and visual baseline. This has been undertaken to inform the EIA Scoping Report and will be reviewed and updated in the ES.
3. Review the design to embed mitigation measures into the Proposed Development to avoid or minimise adverse landscape and visual effects and maximise opportunities for landscape integration and enhancement. This will be undertaken for the assessment presented in the ES.
4. Determine the sensitivity of landscape and visual receptors, by considering the value attached to the landscape or views and susceptibility to change of the receptor. This has been undertaken to inform the EIA Scoping Report and will be reviewed and updated in the ES.
5. Assess the magnitude of impact of the Proposed Development in relation to size or scale, geographical extent, duration and reversibility. This will be undertaken for the assessment presented in the ES.
6. Assess the significance of effect by considering the relationship between the sensitivity of the receptor and the magnitude of impact and determine which effects are significant. This will be undertaken for the assessment presented in the ES.

11.4.1.2 Further fieldwork will be undertaken to inform the ES. This will cover winter and summer seasons. Fixed-point photography will be captured for each agreed viewpoint and measured surveys will be carried out for viewpoints where photomontages are proposed.

11.4.1.3 The LVIA will also be informed by arboricultural surveys, which will record the extent, type and condition of trees within and surrounding the Site. The results of these surveys, along with habitat surveys, including hedgerow surveys, will inform an assessment of landscape features and the mitigation and enhancement measures embedded in the design.

11.4.1.4 The location of the On-Site Substation(s) within the Solar Development Site has not yet been confirmed. ZTV will be re-run for these elements along with further fieldwork to inform any necessary changes to the study area (refer to paragraph 11.2.3.8) and any changes to the selection of landscape and visual receptors and representative viewpoints.

11.4.1.5 The location of BESS within the Solar Development Site has not yet been confirmed. ZTV have been modelled based on a worst-case scenario where they could be located anywhere within the Solar Development Site. ZTV will be re-run for these elements along with further fieldwork to inform any necessary changes to the study area (refer to paragraph 11.2.3.8) and any changes to the selection of landscape and visual receptors and representative viewpoints.

11.4.2 Assessment scenarios

11.4.2.1 The assessment of the likely landscape and visual effects of the Proposed Development will be undertaken for the following scenarios:

- Current baseline (winter and summer) – reflective of the conditions which exist at the time of gathering baseline environmental data and undertaking the LVIA.
- Future baseline (winter and summer) – reflective of the conditions that will be experienced in the future, immediately prior to construction of the Proposed Development.
- The peak of construction activity, in winter.
- Year 1 of operation, in winter, to reflect a worst-case assessment scenario.
- Year 15 of operation, in summer, to reflect the entirety of the Proposed Development in operation, when proposed vegetation has matured or achieved its design intention.
- The peak of decommissioning activity, in winter.

11.4.3 Assessment of landscape effects

Landscape baseline

11.4.3.1 Landscape is defined by the ELC²⁰² as:

“an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors”.

11.4.3.2 Natural England’s ‘An Approach to Landscape Character Assessment’²⁰⁴, provides some useful context to the ELC. It sets out the following five principles which apply to landscape character assessment:

- Landscape is everywhere and all landscape has character.
- Landscape occurs at all scales and the process of LCA can be undertaken at any scale.
- The process of LCA should involve an understanding of how the landscape is perceived and experienced by people.
- A LCA can provide a landscape evidence base to inform a range of decisions and applications.
- A LCA can provide an integrating spatial framework- a multitude of variables come together to give us our distinctive landscapes.

11.4.3.3 GLVIA3 defines landscape receptors as:

“aspects of the landscape resource that have the potential to be affected by a proposal”.

11.4.3.4 Landscape receptors have been identified via a review of published LCA, maps and aerial photography, relevant planning policy and fieldwork surveys. A baseline description is then provided for each of the identified landscape receptors.

11.4.3.5 Existing landscape features that could be subject to change will be described in their own right with reference to the Arboricultural Impact Assessment (AIA) that will be undertaken to accompany the Application and hedgerow surveys, in accordance with point 5(2) of Landscape Institute (LI) Technical Guidance Note (TGN) 01/24208.

11.4.3.6 Landscape character is defined by GLVIA3 as:

“a distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.”

- 11.4.3.7 Landscape character assessment is defined within the glossary of GLVIA3 as the: *“process of identifying and describing variation in the character of the landscape, and using this information to assist in managing change in the landscape. It seeks to identify and explain the unique combination of elements and features that make landscapes distinctive.”*
- 11.4.3.8 Point 5(1) of LI TGN 01/24²⁰⁸ states that: *“it is not necessary to assess effects on every landscape character type or area identified by assessments at different levels for any development – the best scale of assessment for the project should be selected”* and that *“where existing assessments are too large or small scale for the nature of the development, supplementary assessment at the appropriate scale may be required and should draw from the assessment(s) available.”*
- 11.4.3.9 Published LCA at the national, regional and local level will be reviewed to identify Landscape Character Types (LCT) and LCA. Those identified through desk-based assessment are mapped in **Figure 11.1: Published Landscape Character Areas**. Point 5(1) of LI TGN 01/24 notes that it is not necessary to assess effects on every LCT or LCA identified by assessments at different levels for any development, explaining that the best scale of assessment for the project should be selected.
- 11.4.3.10 The geographical extent of LCA in published assessments at the national level are generally large and extend beyond the study area. As explained in paragraph 5.14 of GLVIA3: *“broad-scale assessments at national or regional level can be helpful in setting the landscape context, but are unlikely to be helpful on their own as the basis for LVIA.”*
- 11.4.3.11 These have therefore been included to provide context but effects on these have not been assessed. The key characteristics of published LCA will be set out in the ES chapter to provide a clear audit trail back to the original studies.
- 11.4.3.12 As explained in pages 76–77 of GLVIA3, historic landscape characterisation can be complementary to landscape character assessment. The likely effects on the historic environment will be assessed in the cultural heritage chapter of the ES. The historic landscape characterisation for Leicestershire, Leicester and Rutland will be used to develop an understanding of the time depth of landscape elements that are relevant to the susceptibility and value judgements about the landscape.

11.4.4 Tranquillity

- 11.4.4.1 Tranquillity is a perceptual aspect of landscape which can also contribute to its value. GLVIA3 defines tranquillity as : *“a state of calm and quietude associated with peace, considered to be a significant asset of landscape”*.
- 11.4.4.2 Tranquillity will be assessed with reference to Tranquillity Map: England²¹³ published by the Council for the Protection of Rural England (CPRE): The Countryside Charity. This mapping is based on a spectrum of more or less tranquil areas, such that the scores illustrated are relative and do not identify absolute tranquillity. The following factors

will be considered in describing the baseline tranquillity for each LCA.

11.4.4.3 CPRE identify positive factors which contribute to tranquillity as:

- openness of the landscape (freedom from development);
- perceived naturalness of the landscape;
- rivers in the landscape;
- areas of low noise; and
- visibility of the sea.

11.4.4.4 CPRE lists negative factors as:

- presence of other people;
- visibility of roads;
- general signs of overt human impact;
- visibility of urban development;
- road, train and urban area noise;
- night-time light pollution;
- aircraft noise; and
- military training noise.

11.4.4.5 This information will be supplemented with more detailed notes captured during fieldwork, using the same terminology as the factors set out above to refine the definition of LCAs that form the basis of the assessment of landscape effects. The conclusions of the noise assessment will also be taken into account to understand baseline tranquillity and likely impacts.

11.4.5 Assessment of night-time effects

11.4.5.1 The night-time baseline will be described with reference to England's Light Pollution and Dark Skies map²¹⁴ published by CPRE: The Countryside Charity. These maps are based on data gathered by a weather satellite. The data is split into nine categories (see Table 11-1) to distinguish between different light levels and the maps are divided into pixels, 400 metres x 400 metres, to show the amount of radiance (night light) shining up into the night sky from that area measured in nanowatts.

Table 11-1: CPRE Dark Skies map categories

Categories	Brightness values in nanowatts/cm ² /steradian (nw/cm ² /sr)
Colour band 1 (darkest)	Less than 0.25
Colour band 2	0.25 – 0.5
Colour band 3	0.5 - 1
Colour band 4	1 - 2
Colour band 5	2 - 4
Colour band 6	4 - 8
Colour band 7	8 - 16
Colour band 8	16 - 32
Colour band 9	More than 32

11.4.5.2 A measured lighting survey is not considered proportionate to the likely effects and therefore these criteria are applied to each LCA to help describe the relative darkness of different areas in the baseline and how these might change as a consequence of the Proposed Development.

11.4.5.3 Reference will also be made to the Institute of Lighting Professionals (ILP) Guidance Note 1 for the reduction of obtrusive light²¹⁵. This guidance defines three types of light pollution:

- skyglow;
- glare; and
- light intrusion.

11.4.5.4 Table 2 of the guidance, reproduced in Table 11-2, establishes criteria for environmental zones that will be applied.

Table 11-2: Institute of Lighting Professionals Guidance Note 1: Environmental Zones

Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark (Sky Quality Meter) SQM 20.5+)	Astronomical Observable dark skies, United Nations Educational, Scientific and Cultural Organization (UNESCO) starlight reserves, International Dark sky Association (IDA) dark sky places.
E1	Natural	Dark (SQM 20 to 20.5)	Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty (AONB), IDA buffer zones etc.
E2	Rural	Low district brightness (SQM ~15 to 20)	Sparsely inhabited rural areas, village or relatively dark outer suburban locations.
E3	Suburban	Medium district brightness	Well inhabited rural and urban settlements, small town centres of suburban locations.
E4	Urban	High district brightness	Town/City centres with high levels of night-time activity.

11.4.5.5 A qualitative assessment of night-time lighting effects for landscape and views will be informed by fieldwork for the following visual receptor groups:

- Residents of local communities.

11.4.5.6 Other receptors will not be considered on the basis that either they would generally not be present at night (e.g. people travelling along PRoW) or their immediate context would be brightly lit if they were present at night (e.g. employment/ any formal sports).

11.4.6 Sensitivity of landscape receptors

11.4.6.1 Paragraph 5.39 of GLVIA3 states that:
“landscape receptors need to be assessed firstly in terms of their sensitivity, combining judgements of their susceptibility to the type of change or development proposed and the value attached to the landscape.”

11.4.6.2 Judging landscape sensitivity will thus be a two-part process of:

- value attached to the landscape – relates to the existing landscape and this will be determined at the baseline stage in line with paragraph 5.19 of GLVIA3, which

states that

as part of the baseline description the value of the potentially affected landscape should be established”; and

- susceptibility to change – which is considered in relation to the Proposed Development.

Value attached to the landscape

11.4.6.3 LI TGN 02/21²⁰⁵ defines landscape value as:
“the relative value or importance attached to different landscapes by society on account of their landscape qualities.”

11.4.6.4 For assessing landscape value outside national designations, TGN 02/21²⁰⁵ is the primary source of guidance. This guidance recommends that indicators of value should be reviewed on a case-by-case basis, taking into account what they contribute (positively or negatively) to a specific landscape and that once evidence for each factor has been collated and assessed, an overall judgement should be made by considering the overall ‘weight of evidence’. The approach to assessing the value attached to the landscape will follow a four-stage process:

- **Stage 1** identify if the landscape is covered by any landscape designations;
- **Stage 2** consider each of the factors listed in Table 11-3 below which have been developed with reference to Table 1 of LI TGN 02/21²⁰⁵ and are pertinent and most important to understanding its value;
- **Stage 3** make an assessment of the value attached to the landscape and assign value based on a five-point scale, clearly articulating the reasons for these judgements; and
- **Stage 4** assess whether there is sufficient evidence through designation, or the value attached to the landscape for the receptor to be considered valued landscape in the context of the NPPF paragraph 187(a).

11.4.6.5 An overall conclusion will be drawn on the value attached to the landscape for each landscape receptor considering the overall weight of evidence.

Table 11-3: Establishing the value attached to the landscape

Stage 1 – Landscape designations	Stage 2 - Define landscape value factors with reference to TGN 02/21	Criteria	Typical Description
Landscape with statutory status or national policy protection: National Park, National Landscape, or World Heritage Site.	Natural heritage - Landscape with clear evidence of ecological, geological, geomorphological or physiographic interest which contribute positively to the landscape.	Very high	A designated landscape with statutory status (National Park or National Landscape (former AONB)). Valued landscape in the context of NPPF paragraph 187 (a).

Stage 1 – Landscape designations	Stage 2 - Define landscape value factors with reference to TGN 02/21	Criteria	Typical Description
Local landscape designation, such as Special Landscape Area or Area of Great Landscape Value, supported by policy and a detailed evidence base. No relevant designations.	Cultural heritage - Landscape with clear evidence of archaeological, historical or cultural interest which contribute positively to the landscape. Landscape condition - Landscape which is in a good physical state both with regard to individual elements and overall landscape structure. Associations - Landscape which is connected with notable people, events and the arts. Distinctiveness - Landscape that has a strong sense of identity. Recreational - Landscape offering recreational opportunities where experience of landscape is important. Perceptual (Scenic) - Landscape that appeals to the senses, primarily the visual sense. Perceptual (wildness and tranquillity) - Landscape with a strong perceptual value notably wildness, tranquillity and/or dark skies. Functional - Landscape which performs a clearly identifiable and valuable function, particularly in the healthy functioning of the landscape.	High	A locally designated landscape supported by a detailed evidence base or with other strong indicators of value, which may include other relevant designations such as ancient woodland or conservation areas, with identified quality in the development plan or evidence base. May be considered valued landscape in the context of NPPF paragraph 187(a) with strong supporting evidence.
		Medium	Unlikely to be a designated for landscape quality but may exhibit some indicators of value which are identified in the development plan or evidence base and are important at the community level.
		Low	Not designated for landscape quality and likely to exhibit few indicators of value which are identified in the development plan or evidence base.
		Very low	A landscape dominated by industry or infrastructure or which is damaged or degraded landscape, not designated for landscape quality and not likely to exhibit indicators of value which are identified in the development plan or evidence base.

Valued landscape

- 11.4.6.6 The principle of a ‘valued landscape’ in England is supported by the NPPF 2024 (Chapter 15: Conserving and Enhancing the Natural Environment). Paragraph 187 requires that planning policies and decisions should contribute to and enhance the natural and local environment by, inter alia, (a):
“protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan).”
- 11.4.6.7 According to paragraph A4.2.11 of TGN 02/21, a ‘valued landscape’ is an area identified as having sufficient landscape qualities to elevate it above other more everyday landscapes. There is therefore a high bar for an area to be considered valued

landscape in the context of the NPPF.

- 11.4.6.8 Paragraph A4.2.5 of TGN 02/21²⁰⁵ states that:
“where a landscape has a statutory status, such as a National Park or AONB, it is self-evident that it is a valued landscape.”
- 11.4.6.9 Therefore, where such landscapes are present within the study area, these will be attributed very high value and will be recognised as valued landscapes in the context of the NPPF.
- 11.4.6.10 A different approach will be taken to determine whether landscapes outside of nationally designated landscapes can be considered valued landscape in the context of the NPPF. Paragraph A4.2.6 of TGN 02/21 notes that the interpretation of ‘identified quality in the development plan’ is not clear and that there are two fundamentally different interpretations that have been adopted by inspectors, which are considered below in more detail:
- it means non-statutory, locally designated landscapes;
 - it means any landscape where there is evidence to justify the identification of a ‘valued landscape’. Local designation alone may not be sufficient evidence.
- 11.4.6.11 NPS EN-1 paragraph 5.10.12 acknowledges that:
“Outside nationally designated areas, there are local landscapes that may be highly valued locally. Where a local development document in England or a local development plan in Wales has policies based on landscape or waterscape character assessment, these should be paid particular attention. However, locally valued landscapes should not be used in themselves to refuse consent, as this may unduly restrict acceptable development.”

The term “locally valued landscape” is not defined in the NPS. Paragraph A4.2.11 of TGN 02/21 is clear that for a landscape without statutory status to be considered a valued landscape in the context of the NPPF it must be supported by strong evidence. The assessment will therefore consider each of the criteria set out in Table 11-3, references in Local Plan policy and evidence base, including whether there are existing local landscape designations in forming an overall judgement on value. Landscapes with high value may also be considered valued landscapes in the context of the NPPF.

Susceptibility of landscape receptors to change

- 11.4.6.12 GLVIA3 paragraph 5.40 defines the susceptibility to change of landscape receptors as:
“the ability of the landscape receptor (whether it be overall character or condition of a particular landscape type or area, or an individual element and/or features, or a particular aesthetic and perceptual aspect) to accommodate the Proposed Development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.”
- 11.4.6.13 The Landscape Institute clarified in point 5(4) of TGN 01/24 that the susceptibility of landscape receptors will vary with the type or nature of change, relating the type of development and the relative size of the development. It goes on to state that:
“relevant criteria will be dependent upon the development type being considered and should be tailored to the project.”
- 11.4.6.14 The features and characteristics which are more or less susceptible to the type of changes

proposed will be set out for each LCA. The narrative will provide a clear explanation based upon analysis of the landscape receptor and the extent to which it is able to accommodate the type of change arising from the specific proposal.

11.4.6.15 Table 11-4 sets out examples of characteristics and features of landscapes which may indicate higher and lower susceptibility in respect of solar development.

Table 11-4: Considerations for landscape susceptibility

Landscape features or characteristics	Indicators of higher landscape susceptibility	Indicators of lower landscape susceptibility
Field pattern, scale and enclosure	Small scale fields. Complex or irregular field pattern. Ancient field patterns. Field boundaries formed by low fences or walls or hedges with few hedgerow trees.	Large scale fields. Simple, regular or rectilinear field pattern. Uniform field pattern. High field boundaries.
Landform	Steep topography. Exposed hillsides. Irregular or complex landform. Narrow valleys and ridges. Distinctive landform features.	Flat landscapes. Expansive lowland landscapes. Uniform landform. Landscapes with no or minimal distinctive landform features.
Land cover	Pastures, particularly where grazing forms key characteristic of the landscape. Significant woodland cover. Parkland or designed landscapes. Natural or semi-natural land cover, particularly where conservation or restoration is a priority.	Large-scale arable land, particularly monoculture or with evidence of intensive farming practices.
Tranquillity/ human influences	Absence of human influences/ natural landscapes. Infrequent built form. Overarching rural character. Remote, tranquil, spiritual or peaceful landscape. Sense of wilderness.	Major infrastructure (transport, utilities, industry). Large concentrations of residential, commercial, industrial development. Character affected by urban development. Noisy, settled landscapes. Modern and developed landscapes with signs of human activity.
Condition / intactness	Intact landscapes with natural or historic features in good condition.	Degraded landscapes (likely to have evidence of human influences/ modern intensive farming practices). Degraded/ intermittent boundary treatments.
Historic features and cultural heritage	Ancient/ historic field patterns. Important, distinctive or remnant features of the landscape. Cultural associations with a particular landscape.	Modern/ developed landscape with limited historic features.
Scenic quality and character	High scenic quality. Strong sense of place.	Low scenic quality. Weak sense of place.
Intervisibility	Open landscapes with exposed or far-reaching views. Sparse woodland and vegetative cover.	Confined or enclosed landscape with few inward or outward views.

Landscape features or characteristics	Indicators of higher landscape susceptibility	Indicators of lower landscape susceptibility
	Field systems defined by fences or managed low boundaries. Strong intervisibility with sensitive landscapes.	Limited invisibility with sensitive landscapes, key views, or landmarks. Intact, overgrown or tall vegetated boundaries with high proportion of hedgerow trees. High proportion of woodland blocks, copses, connected woodlands and belts.

11.4.6.16 The susceptibility to change for each landscape receptor will be categorised with reference to the criteria in Table 11-5 below.

Table 11-5: Landscape susceptibility criteria

Landscape susceptibility	Typical description
Very high	The type of change arising from the specific proposal are <u>very likely</u> to lead to undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
High	The type of change arising from the specific proposal are <u>likely</u> to lead to undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
Medium	The type of change arising from the specific proposal <u>may</u> lead to undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
Low	The type of change arising from the specific proposal are <u>unlikely</u> to lead to undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
Very low	The type of change arising from the specific proposal are <u>very unlikely</u> to lead to undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.

Combining judgements to define landscape sensitivity

11.4.6.17 The sensitivity of each LCA has been defined by combining professional judgements on the value attached to the landscape and its susceptibility to change and is supported by a clear narrative. Reference has been made to the criteria set out in Table 11-6 below.

Table 11-6: Sensitivity of landscape receptors criteria

Sensitivity	Typical description
Very high	Landscapes with statutory status or national policy protection with very limited ability to accommodate the type of change without undue consequences for the maintenance of the baseline situation and/ or the achievement of landscape planning policies and strategies.
High	Landscapes which may be locally designated or otherwise supported by a detailed evidence base or landscape with other strong indicators of value with limited ability to accommodate the type of change without undue consequences for the maintenance of the baseline situation and/ or the achievement of landscape planning policies and strategies.
Medium	Landscapes which are unlikely to be a designated for landscape quality but may exhibit some indicators of value and which may have some ability to accommodate the type of change without undue consequences for the maintenance of the baseline situation and/ or the achievement of landscape planning policies and strategies.
Low	Not designated for landscape quality and likely to exhibit few indicators of value and likely to accommodate the type of change without undue consequences for the maintenance of the baseline situation and/ or the achievement of landscape planning policies and strategies.

Sensitivity	Typical description
Very low	Landscapes of very low value able to accommodate the type of change without undue consequences for the maintenance of the baseline situation and/ or the achievement of landscape planning policies and strategies.

11.4.7 Magnitude of landscape impacts

11.4.7.1 Paragraph 3.28 of GLVIA3 notes that the magnitude of impact is informed by combining considerations relating to the “*scale, extent and duration*” of impacts. This includes the geographical extent of influence, the spatial extent of the impact, the level of integration of new features with existing elements, its duration and degree to which the impact is reversible.

11.4.7.2 In summarising the magnitude of landscape impacts, reference will be made to the following:

- **size or scale** - the degree to which key characteristics or features identified in the baseline would change, the proportion of the total extent that this represents and the contribution of that element to the character of the landscape. It will also be influenced by the degree to which aesthetic or perceptual aspects of the landscape would be altered and whether this would change the key characteristics of the landscape;
- **geographical extent** – the area over which the change would occur. For example, whether the effects of the Proposed Development are perceived over a large or very localised area;
- **duration** – the time over which the change would occur, set out on the following scale: short-term (0-5 years), medium-term (5-15 years), or long-term (over 15 years); and
- **reversibility** - related to whether the change can be reversed and is reported as reversible, partially reversible or permanent, e.g. effects arising from presence of construction traffic will cease at the end of construction and therefore is considered to be reversible, whereas effects arising from presence of new built development could be partially reversible or permanent.

11.4.7.3 LI TGN 01/24 suggests that the size/ scale of impacts is likely be the most important factor (3(3)). In point 5(11) it goes on to state that geographical extent should reflect the relevance of the location and that the spread of effects should be used as a ‘modifier’ to the scale of effect so that it does not understate the magnitude of effects for extensive receptors such as large character areas or designations. This is the approach that will be taken in this assessment.

11.4.7.4 The criteria set out in Table 11-7 will be referred to in evaluating the magnitude of landscape impacts.

Table 11-7: Magnitude of landscape impacts criteria

Magnitude of impact	Typical description
Very high	Substantial changes to key characteristics across most of the area or to unique and distinctive features at a local level. May be longer term impacts and are more likely to be permanent than reversible.
High	Changes to the character of the landscape across large parts of the area or to distinctive features at a local level. May be longer term impacts, permanent or reversible.

Magnitude of impact	Typical description
Medium	Changes to the character of the landscape across parts of the area or to some existing features at a local level. May be medium term impacts, permanent or reversible.
Low	Slight change to landscape character or landscape features across a small area. May be short to medium term impacts and are more likely to be reversible than permanent.
Very low	Barely perceptible change to the landscape receptor or may impact a limited area or no key characteristics. May be short term impacts, permanent or reversible.

11.4.7.5 There may be cases where there will be no impacts on a receptor, for example where the design has been changed to avoid such impacts. In such cases this will be recorded as no change.

11.4.8 Significance of landscape effects

11.4.8.1 The approach to determining the level of landscape effects and whether these effects are considered significant in EIA terms will be the same for both landscape and visual effects and is outlined in Section 11.4.14.

11.4.9 Assessment of visual effects

Visual baseline

11.4.9.1 Visual receptors are defined in GLVIA3 as:
“individuals and/ or defined groups of people who have the potential to be affected by a proposal”.

11.4.9.2 This includes, for example, local communities, users of PRoW and motorists.

11.4.9.3 Computer-generated ZTV have been prepared and will be refined to support the assessment. GLVIA3 defines as ZTV as:
“a map, usually digitally produced, showing areas of land within which a development is theoretically visible.”

11.4.9.4 ZTV do not indicate how much of a development will be visible. The purpose of the ZTV is outlined above in paragraph 11.2.3.2.

11.4.9.5 ZTV have been modelled in this EIA Scoping Report using the ‘Viewshed’ tool in ESRI ArcPro GIS Software and the same software and tool will be used for future iterations of the ZTV. An updated bare earth ZTV will be prepared using DTM data with a resolution of 2m for the ES. This ZTV represents a worst-case scenario as it does not include features such as existing buildings or vegetation which can screen or filter views. A further updated ZTV will be prepared for the ES that includes existing surface features. This ZTV will provide some understanding of potential screening or filtering of views of the Proposed Development and will be further verified through fieldwork. For all ZTV, an assumed viewing height of 1.7m AGL will be used to simulate the eye level of a person at the top of the range set out in paragraph 6.11 of GLVIA3 to represent the worst-case scenario.

11.4.9.6 A summary of the Proposed Development features modelled in the ZTVs and findings

from prepared ZTV that accompany this EIA Scoping Report is provided in Section 11.2.3.

Visual receptors and representative viewpoints

- 11.4.9.7 Visual receptors likely to experience views of the Solar Development Site have been identified through interrogation of the ZTV, desk-top analysis of maps and Google Earth, and fieldwork surveys. They have subsequently been categorised into the following types:
- residents of local communities;
 - recreational; and
 - transport.
- 11.4.9.8 Specific visual receptors likely to experience views of the Grid Connection Cables have not yet been identified as refinement has not been completed. Visual receptors will be identified and agreed with the local planning authorities once refinement has been completed.
- 11.4.9.9 Where a collection of visual receptors in the same category are likely to experience similar views, they have been grouped. Representative viewpoints have been identified within the ZTV to assist in describing the baseline view and the effects likely to be experienced by visual receptor groups. The current proposed representative viewpoints shown on **Figure 11.2: Zone of Theoretical Visibility (ZTV) and Proposed Viewpoints – Based on Digital Terrain Model data** and **Figure 11.3: Zone of Theoretical Visibility (ZTV) and Proposed Viewpoints – Based on Digital Surface Model data** have been selected on the basis that they cover a range of viewing distances, elevations and orientations from locations with different viewing experiences of the Solar Development Site and will be agreed with the local planning authorities. The selection of representative viewpoints has been informed by the following criteria:
- accessibility to the public;
 - number and sensitivity of people whose can be affected;
 - viewing direction, distance, openness and elevation; and
 - nature of the viewing experience.
- 11.4.9.10 All photographs and photomontages will be prepared in accordance with LI TGN 06/19. Photographs taken during fieldwork surveys will be used to help demonstrate the nature of baseline views including the extent of existing screening. These photographs will be presented as Type 1 (annotated viewpoint photographs). Type 4 (photomontages) will be prepared for a selection of viewpoints to illustrate the likely extent and nature of changes in baseline views as a result of the Proposed Development.
- 11.4.9.11 Further detail on the methodology for the preparation of photomontages will be provided in the ES that accompanies the Application.
- 11.4.9.12 The Landscape Institute clarified the extent to which the views of residents fall within the scope of LVIA in 6(1) of TGN 01/24. It explains that views from houses and individual properties are a matter of private amenity, noting that it is an established planning principle that there is no right to a view. It states that:
“LVIA should consider views from local communities focusing on the way that a community currently experiences views from public locations such as streets and open spaces and how those will change,” and;

“it may be helpful for an LVIA to comment on changes to views that will be experienced from groups of properties, or in some cases individual properties, if these changes are likely to be significant.”

- 11.4.9.13 If the LVIA identifies the likelihood of residual effects on visual receptors which would be major adverse (the highest level of significant effects) at year 15 of operation (i.e. after the establishment of proposed planting and in summer) a Residential Visual Amenity Assessment (RVAA) will be carried out.

11.4.10 Sensitivity of visual receptors

- 11.4.10.1 Paragraph 6.31 of GLVIA3 states that:
“each visual receptor, meaning the particular person or group of people likely to be affected at a specific viewpoint, should be assessed in terms of both their susceptibility to change in views and visual amenity and also the value attached to particular views.”
- 11.4.10.2 The sensitivity of visual receptors results from a combination of parameters, such as:
- activity/ occupation/ pastime of the receptors at particular locations;
 - extent to which their attention or interest may be focused on the views; and
 - visual amenity they experience.
- 11.4.10.3 Consideration will also be given to the:
- location, focus and orientation;
 - features or characteristics of value within the view;
 - principal or secondary interests;
 - static or kinetic nature of views; and
 - duration of the view.

Value attached to views

- 11.4.10.4 A three-stage process will be used to determine the value attached to views. This relates to the features and characteristics of the baseline landscape within the view and other indicators of value, for example reference in policy, guide books, literature or art.
- **Stage 1:** identify if the view or the landscape within the view is covered by any relevant policy or designations and note features and characteristics of value with reference to the landscape baseline;
 - **Stage 2:** identify if the view is identified on maps, is likely to be from a popular visitor location or has historical or cultural importance or associations; and
 - **Stage 3:** Determine the value attached to the view with reference to the criteria provided in Table 11-8 using the evidence from stages 1 and 2.

Table 11-8: Value attached to view criteria

Value	Typical description
Very high	Views within or across a nationally or internationally designated landscapes and/ or specific views designated in national or regional policy. Views are likely to have few or no detracting features and which may also have strong cultural associations supported by evidence, which could include links to historical events or people, representation in art or literature, for example.
High	Views within or across regionally or locally designated landscapes, other or landscapes with strong indicators of value, or views identified in the development plan or evidence base. Views are likely to have few or no detracting features and may also have some cultural associations supported by strong evidence.

Value	Typical description
Medium	Views across landscapes which are unlikely to be designated but may exhibit some indicators of value which are identified in the development plan or evidence base and are important at the community level. Views may have some detracting features and cultural associations supported by evidence.
Low	Views across landscapes which are not designated for landscape quality and likely to exhibit few indicators of value which are identified in the development plan or evidence base. Views are likely to have some detracting features and lack cultural associations supported by evidence.
Very low	View across landscapes which are neither designated, nor identified in the development plan or evidence base, and without cultural associations. The landscape in the view is in poor condition or notably detracts from the experience of the view.

11.4.11 Susceptibility of visual receptors to change

11.4.11.1 The sensitivity of visual receptors is also dependent upon their susceptibility to changes in views and the visual amenity they experience.

11.4.11.2 Paragraph 6.32 of GLVIA3 explains that:

“the susceptibility of different visual receptors to changes in views and visual amenity is mainly a function of:

- the occupation or activity of people experiencing the view at particular locations; and*
- the extent to which their attention or interest may therefore be focussed on the views and the visual amenity they experience at particular locations.”*

11.4.11.3 GLVIA3 notes that visual receptors:

“most susceptible to change”... include residents and visitors engaged in outdoor recreation “whose attention or interest is likely to be focused on the landscape and on particular views.” (para 6.33).

11.4.11.4 Table 11-9 sets out the criteria referred to in determining the susceptibility of visual receptors to the Proposed Development.

Table 11-9: Susceptibility of visual receptors criteria

Susceptibility	Typical description
Very high	Visitors to nationally or internationally designated landscapes, particularly at specific viewpoints or viewing places, where views of the landscape are fundamental to the experience. People engaged in specific activities for enjoyment of dark skies.
High	Residents at home. Visitors to tourist hotspots, heritage assets or other attractions outside of nationally or internationally designated landscapes, particularly at specific viewpoints or viewing places, where views of the landscape are important to the experience. People engaged in outdoor recreation whose attention or interest is likely to be focussed on the landscape and on particular views, for example those using promoted walking and cycling routes. People travelling along promoted scenic routes.
Medium	People engaged in outdoor recreation or travelling along PRoW or local roads, which are not promoted routes but where an appreciation of the surrounding landscape are relevant to the experience. People working outdoors.
Low	People engaged in outdoor sport or recreation which does not involve or depend upon appreciation of views of the landscape.

Susceptibility	Typical description
	People travelling on major road, rail or other transport routes which are not recognised as scenic routes.
Very low	People working indoors.

11.4.12 Summarising the sensitivity of visual receptors

- 11.4.12.1 The sensitivity of visual receptors is based on professional judgement and will be informed by the criteria in Table 11-10, considering the value attached to views and susceptibility of visual receptors to the changes proposed.

Table 11-10: Sensitivity of visual receptors criteria

Criteria	Typical description
Very high	Activity where views are fundamental to the experience and are related to landscapes with national or international designation and with few or no detracting features and which may also have strong cultural associations supported by evidence.
High	Activity resulting in a particular interest or appreciation of the view and/ or views within or across regionally or locally designated landscapes, other or landscapes with strong indicators of value, or views identified in the development plan or evidence base with few or no detracting features and may also have some cultural associations supported by strong evidence.
Medium	Activity resulting in a general interest or appreciation of a view, likely to exhibit some indicators of value which are identified in the development plan or evidence base and are important at the community level.
Low	Activity where interest or appreciation of the view is secondary to the activity or the period of exposure to the view is limited, and/or views across landscapes which are not designated for landscape quality and likely to exhibit few indicators of value and likely to have some detracting features and lack cultural associations supported by evidence.
Very low	Activity where interest or appreciation of the view is inconsequential to their activity, and/ or across landscapes which are neither designated, nor recognised in policy, and without cultural associations or is in poor condition or notably detracts from the experience of the view.
Very low	Activity where interest or appreciation of the view is inconsequential to their activity, and/ or across landscapes which are neither designated, nor recognised in policy, and without cultural associations or is in poor condition or notably detracts from the experience of the view.

11.4.13 Magnitude of visual impacts

- 11.4.13.1 The magnitude of visual impacts relates to the extent to which the baseline view would change as a result of the Proposed Development. This assessment will be made with reference to fieldwork observations, photographs and photomontages where relevant from the representative viewpoints identified/ agreed with relevant stakeholders.
- 11.4.13.2 Paragraph 3.28 of GLVIA3 notes that magnitude is informed by combining considerations relating to the “*scale, extent and duration*” of impacts. This includes the geographical extent of influence, the spatial extent of the impact, the level of integration of new features with existing elements, its duration and degree to which the impact is reversible.
- 11.4.13.3 Reference will be made to the following in summarising the magnitude of visual impacts:

- **Size and scale** – loss of existing features or addition and integration of new features and the time over which it will be experienced and whether views will be full, partial or glimpsed.
- **Geographical extent** – the angle of view in relation to the main activity of the receptor, the distance of the viewpoint from the Proposed Development and the extent of the area over which the changes would be visible, including whether views are fixed or sequential.
- **Duration and reversibility** – the time over which the change would occur, set out on the following scale: short-term (0-5 years), medium-term (5-15 years), or long-term (over 15 years).

11.4.13.4 LI TGN 01/24 suggests that the size/ scale of impacts is likely be the most important factor (3(3)). In point 5(11) it goes on to suggest that geographical extent should reflect the relevance of the location and that the spread of effects should be used as a ‘modifier’ to the scale of effect so that it does not understate the magnitude of effects for extensive receptors such as large character areas or designations. This is the approach taken that will be taken in this assessment.

11.4.13.5 The magnitude of visual impact is defined by combining judgements on size or scale, geographical extent, duration and reversibility, with reference to Table 11-11, based on guidance from GLVIA3.

Table 11-11: Magnitude of visual impacts criteria

Magnitude of impact	Typical description
Very high	The Proposed Development will result in extensive changes to the character and composition and will become the dominant feature of the landscape within the view. There may be longer term impacts, permanent or reversible.
High	The Proposed Development will change the character and composition of large parts of the landscape within the view. There may be longer term impacts, permanent or reversible.
Medium	The Proposed Development will change the character and composition of discrete parts of the landscape within the view. There may be medium term impacts, permanent or reversible.
Low	The Proposed Development will cause small changes to the character and composition of the landscape within the view. There may be short to medium term impacts, permanent or reversible.
Very low	The development will cause barely perceptible changes in the character and composition of the landscape within view. May be short term impacts, permanent or reversible.

11.4.13.6 There may be cases where there will be no impacts on a receptor, for example where the design has been changed to avoid such impacts. In such cases this will be recorded as no change.

11.4.14 Significance of landscape and visual effects

11.4.14.1 The approach to determining the level of landscape effects and visual effects and whether these effects are considered significant in EIA terms will be the same.

11.4.14.2 Judgements on the sensitivity of each landscape and visual receptor and the magnitude of impact will be combined to establish the level of effect and whether effects are considered significant in EIA terms. There are important distinctions between these two terms:

- Level of effect relates to the level recorded for any effect, with reference to the matrix set out in Table 11-12 below.
- Significant effects are those which are considered most important in the decision-making process. An effect in this LVIA will be considered a likely significant effect in EIA terms if it is of major or moderate significance. All other effects will be categorised as not significant.

11.4.14.3 As noted in 3(6) of LI TGN 01/24, LVIA is a means of documenting professional judgement, rather than a formulaic process. Table 11-12 will be used to guide judgements on the relationship between the sensitivity of a visual receptor, the magnitude of impact and the resulting level of effect. Where conclusions differ from this guide, a reasoned explanation will be provided in the assessment text.

Table 11-12: Determining the significance of landscape and visual effects

Sensitivity	Magnitude of impact					
		Very large	Large	Medium	Small	Very small
	Very high	Major	Major	Major or Moderate	Moderate	Moderate or Minor
	High	Major	Major or Moderate	Moderate	Moderate or Minor	Minor
	Medium	Major or Moderate	Moderate	Moderate or Minor	Minor	Minor or Negligible
	Low	Moderate	Moderate or Minor	Minor	Minor or Negligible	Negligible
	Very low	Moderate or Minor	Minor	Minor or Negligible	Negligible	Negligible

11.4.14.4 The identification of the likely significant effects on landscape and visual receptors will rely on detailed analysis and the professional judgement of competent experts, and consultation with stakeholders. Point 3(7) of LI TGN 01/24 states that:
“the level of effect and whether it will have a positive or negative (or neutral) consequence are independent of each other.”

11.4.14.5 Whether effects are adverse, beneficial or neutral will be determined by considering the way in which the changes are likely to affect the baseline:

- Adverse effects are likely to occur where the Proposed Development introduces new elements or changes which are discordant or intrusive resulting in a deterioration to existing character or valued features of the landscape or of views and visual amenity.
- Beneficial effects are likely to occur where the Proposed Development enhances the character of the landscape or existing views.
- Neutral will be used to describe a categorisation of effect. Paragraphs 5.37 and 6.29 of GLVIA3 state that it is possible for effects to be neutral in their consequences for landscape and for visual receptors. Where a judgement of neutral effects has been reached, reference will be made to the contribution of the Proposed Development to the baseline and acknowledging the positive and negative aspects which have been considered.

11.4.14.6 Where the assessment has concluded that there will be no impacts on a receptor, this will be reported as no effect. This may, for example, be a consequence of changes to the design which has avoided impacts on receptors identified at the scoping stage.

- 11.4.14.7 Residual effects will be those which remain even with embedded mitigation at construction and at year 15 of operation and which cannot be further mitigated by design or other measures in this time period.

11.5 Baseline Conditions

11.5.1 Existing baseline

- 11.5.1.1 This section provides a summary of the existing baseline for the Solar Development Site and its 3km study area. As outlined in 11.2.3 the full LVIA study area will also include the area extending 500m from the Grid Cable Route Search Area. The landscape and visual baseline conditions for the Grid Cable Route Search Area and 500m study area will be described once further refinement has been completed.

Solar Development Site context

Topography and hydrology

- 11.5.1.2 The landscape within the study area is gently undulating with some isolated areas of rolling ridges, which lie to the east and north of Pickworth. The highest points within the Solar Development Site reach up to 90m AOD to the south-west of Pickworth, gently falling to 40m AOD towards the River Gwash, south of the Solar Development Site, near Little Casterton. Pickworth lies on the Rutland Plateau, characterised by gently undulating terrain, evident within the study area to the north of Pickworth. The hydrology is influenced by the River Gwash, which meanders through a valley from west to east, past Great Casterton and south of Tickencote. The River Gwash and North Brook (a tributary of the River Gwash) outflow from Rutland Water SSSI (located 3.5km south-west and so outside the study area), flowing eastwards towards Stamford, to join the River Welland (both outside the study area to the east).
- 11.5.1.3 There are several isolated water bodies within and near to the Solar Development Site running west to east, and several dykes and historic drainage ditches; the topography contributes to the nature of this drainage network. In addition to this, there are artificial lakes within designated parkland including Fort Henry Lake (located around 500m west of the Solar Development Site and within the study area) and Lower Lake (directly adjacent to the south of Fort Henry Lake), which forms part of the network of water bodies connected to the North Brook watercourse.

Geology and soils

- 11.5.1.4 The generalised geology of the region, including the Solar Development Site is presented in **Section 10: Water Environment and Flood Risk** (Table 10.5) and includes strata associated with the Lincolnshire Limestone Formation. There is evidence of limestone being mined historically in places such as Clipsham Old Quarry (located north-west of Pickworth) and other quarries, just to the north of the Solar Development Site and falling within the study area.
- 11.5.1.5 As outlined on LandIS soilscape viewer²¹⁶ [1], types of soils found within the study area include shallow lime-rich soils over chalk or limestone and slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils located within the Solar Development Site are described in **Section 15: Agriculture and Soils** (refer to **Section**

15.4.1: Existing Baseline).

Land cover

- 11.5.1.6 The landcover within the study area comprises predominantly agricultural land interspersed with woodlands, grasslands, and wetlands, each shaped by the underlying geology, soil conditions and topography. Most of the agricultural land comprises a mixture of scales and sizes. The northern parts of the study area include greater woodland cover including Pickworth Great Wood which is located 15m to the north of the Solar Development Site. Scattered parcels of woodland are located to the north, east and south-west of the Solar Development Site, and are mostly of medium to small scale and are either ancient woodland (AW), ancient semi-natural woodland (ASNW) or ARW. Most of the woodland in the area is ancient deciduous of medium scale and comprises a mixture of oak, ash and birch. There are also small linear plantations across agricultural land often forming field boundaries near to the Solar Development Site to the east and south. There are pockets of grassland in the area such as limestone grasslands and wet meadows, rich in species and adapted to the area's soils, to the north of Pickworth and to the south of the Solar Development Site near the River Gwash. Those that are designated as SSSI because of this interest are noted in **Section 9: Ecology and Biodiversity** (Table 9-4).

Land use and settlement

- 11.5.1.7 The majority of land in the study area is dedicated to arable farming, with large fields used for growing crops such as cereals, rape and vegetables. Smaller scale fields of pasture are located closer to the River Gwash and marshy areas.
- 11.5.1.8 In addition, as noted in **Section 13: Socio-economics**, some locations within the study area are used for recreation and leisure such as the Woolfox Golf and Country Club (Rutland County Golf Club) and Greetham Valley Golf Club (to the west of the Solar Development Site within the study area), Grade II* Registered Exton Park (immediately south-west of the Solar Development Site) and woodlands to the north of the Solar Development Site, north of Pickworth.
- 11.5.1.9 Settlement is small and sporadic, with villages spread across the study area such as Pickworth to the north of the Solar Development Site and Tickencote to the south of the Site. The disused airfield, Former RAF Woolfox Lodge is located to the west of the Solar Development Site.

Movement and connectivity

- 11.5.1.10 As described in **Section 14: Transport and Access (Section 14.5: Baseline Conditions)**, the study area is situated within a rural landscape but is well-connected. The A1 (Great North Road) is a trunk road which connects London to Edinburgh and Stamford and Peterborough locally. The A1 connects to smaller B roads and unnamed local roads in the vicinity, which connect the villages and other nearby settlements. The local roads are narrow and linear, sometimes meandering, typical of the rural landscape. There are no railway stations in the study area, however the East Coast Main Line railway crosses the northeastern part of the study area connecting Peterborough to Grantham. The nearest railway station (4.5km south-east of the Site, outside of the study area) is at Stamford, connecting to Peterborough and major cities such as London. Bus

services are limited within the rural areas of Pickworth and Tickencote and adjacent settlements.

- 11.5.1.11 There is a network of PROW, comprising footpaths and bridleways which focus nearer to local villages such as Little Casterton, Pickworth and Empingham, with some routes following local roads or field boundaries. The Rutland Round long distance walking route crosses the Solar Development Site and connects to wider recreational routes across the study area such as Macmillan Way (near Rutland Water), Hereward Way, Jurassic Way (near Stamford) and Viking Way (near Greetham to the west).

Tranquillity and night-time lighting

- 11.5.1.12 The study area comprises a predominantly rural landscape, with small settlements of low population density. There is limited urban noise in the area. However, as described in **Section 12: Noise and Vibration**, road traffic noise from the A1 is audible in some areas such as Tickencote and to the south, near Stamford (outside of the study area). There are active quarries to the north which will also provide a source of noise that may be audible but are set back from villages. The land is mainly agricultural and so noise is associated with the activities from the farmland. CPRE: The Countryside Charity Tranquillity Map²¹⁷ data shows that the northern parts of the study area generally have higher levels of relative tranquillity. To the south near Empingham, Great Casterton, Stamford and along the A1, levels of tranquillity are generally lower, falling between the middle and lower end of the CPRE tranquillity scale.
- 11.5.1.13 The area is rural, resulting in higher levels of relative tranquillity, particularly away from road infrastructure in the smaller villages. As illustrated on England's Light Pollution and Dark Skies mapping (CPRE)²¹⁴, in general light pollution levels are low within the study area, falling within 0.25-0.5 Nanowatts / cm²/sr. However, there are some brighter areas closer to Stamford, falling within 1-4 Nanowatts / cm²/sr, in the south-east due to streetlights, lights from residential properties and traffic. The A1 is a busy trunk road with vehicle lights visible. However, it does not have any street lighting within the study area.

Landscape designations

- 11.5.1.14 There are no statutory landscape designations (i.e. National Parks or National Landscapes) or local landscape designations (i.e. Areas of Great Landscape Value or Special Landscape Areas) within the Solar Development Site or the study area.

Other relevant designations

- 11.5.1.15 A high-level review has identified other relevant natural and cultural heritage designations that contribute to landscape character and visual amenity which fall within a 1km radius of the Solar Development Site and are outlined below in Table 11-13.
- 11.5.1.16 These natural and cultural heritage designations are important features contributing to the perceptual characteristics, quality and overall character of the landscape. It is not within the scope of this LVIA to assess them as individual receptors, yet their contribution to the landscape will be captured within the assessment of relevant character areas.

Table 11-13: Other relevant designations within 1km of the Solar Development Site

Other designations and key landscape features within the study area	Direction and approximate nearest distance from the Solar Development Site
Sites of Special Scientific Interest (SSSI)	• Newell Wood, <5m north-east; • Clipsham Old Quarry and Pickworth Great Wood, approximately 15m to the north; • Bloody Oaks Quarry, approximately 15m to the south-east; • Ryhall Pasture and Little Warren Verges, approximately 270m to the east; • East Wood, Great Casterton, approximately 600m to the south-east; • Holywell Banks, approximately 845m to the north; and • Tickencote Marsh, approximately 860m to the south-west.
Ancient Woodland	• Hollywell Wood, directly adjacent to the Site to the north; • Bloody Oaks, approximately 20m south, to the south of A1, Great Casterton Road; • Woodhead, approximately 20m to the east; • Castledike Wood, approximately 20m to the north-east; • Lane Wood, approximately 175m to the east; • Tickencote Laund, approximately 180m to the south; • Hardwick Wood, approximately 265m to the west, near the Woolfox Golf and Country Club; • Pattinsons Holt, approximately 345m to the north; • Lodge Wood, approximately 605m to the south; • Old Wood, approximately 610m to the south; • Woolfox Wood, approximately 690m to the west; and • Obsonall Wood, approximately 1km to the north-west.
Land dedicated as 'Access Land' under the Countryside and Rights of Way Act 2000	• Holywell Wood, directly adjacent to the north.
Registered Parks and Gardens	• Exton Park, Grade II*, directly adjacent to the west.
Scheduled Monuments	• Castle Dyke moated site, approximately 60m to the north-east; • Woodhead Castle ringwork bailey and fishpond, approximately 90m to the east; • Horn deserted medieval village and moated site, approximately 220m to the west; and • Air photography site NE of village and site of Roman town, approximately 555m to the south-east.
Conservation Areas	• Tickencote Conservation Area includes Grade II and Grade I Listed Buildings, approximately 140m to the south; and • Great Casterton Conservation Area includes Grade I and Grade II Listed buildings, approximately 375m to the south-east.
Listed Buildings	• A number of Grade II listed buildings in Pickworth, less than 100m from the Solar Development Site; • Several Grade II and one Grade I listed buildings in Tickencote, approximately 200m to the south; • Christians Lodge, Grade II, approximately 350m to the east; • Fort Henry pleasure house and flanking retaining walls and parapet, Grade II*, approximately 540m to the west; and • Horn Mill House and Horn Mill Bridge, Grade II, approximately 975m and 990m to the south.

Landscape character

11.5.1.17 GLVIA3 defines landscape receptors as:

“aspects of the landscape resource that have the potential to be affected by a proposal.”

- 11.5.1.18 Landscape receptors have been identified via a review of published landscape character assessments, maps and aerial photography, relevant planning policy and fieldwork surveys.
- 11.5.1.19 Landscape character is defined by GLVIA3 as:
“a distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.”
- 11.5.1.20 Published LCA at the national, regional and local level have been reviewed to identify LCT and LCA. These are mapped in **Figure 11.1: Published Landscape Character Areas**.
- 11.5.1.21 The geographical extent of LCA in published assessments at the national level are generally large and extend beyond the study area. As explained in paragraph 5.14 of GLVIA3:
“broad-scale assessments at national or regional level can be helpful in setting the landscape context, but are unlikely to be helpful on their own as the basis for LVIA.”
- 11.5.1.22 The study area falls within NCA 75: Kesteven Uplands¹⁹ and effects on this receptor will be assessed in the ES because of the proportion of the area which would be affected. NCA 74: Leicestershire and Nottinghamshire Wolds²¹⁸ is located to the west of the Solar Development Site across a small part of the study area. There would be no physical impacts within the NCA, and it has therefore been **Scoped Out** of the assessment.
- 11.5.1.23 The LCA that will be referred to in the LVIA are listed in Table 11-14. The LVIA will assess the impacts on the landscape at the national, district and local scale to provide an understanding of the geographical extent of effects. Other LCA defined at the national and regional scale will be included to provide context but effects on these receptors will not be assessed. The baseline landscape character will be mapped and described in the ES, with reference to the published landscape character areas. Table 11-14 describes the parts of the Proposed Development which are located within each relevant character area.

Table 11-14: Published landscape character assessments and relevant landscape character areas

Landscape character assessment	Relevant character areas	Parts of the Proposed Development located within the character area
National – Natural England NCA profiles	NCA 75: Kesteven Uplands	Within the Solar Development Site, Grid Cable Route Search Area and study area
	NCA 74: Leicestershire and Nottinghamshire Wolds	Within the study area
District – Rutland Landscape Character Assessment	LCT D. Rutland Plateau	Within the Solar Development Site, Grid Cable Route Search Area and study area
	LCT E. Welland Valley	Within the study area
	LCA Di. Cottesmore Plateau	Within the study area
	LCA Dii. Clay Woodlands	Within the Solar Development Site, Grid Cable Route Search Area and study area

Landscape character assessment	Relevant character areas	Parts of the Proposed Development located within the character area
	LCA Diii. Gwash Valley	Within the Grid Cable Route Search Area and study area
	LCA Div. Ketton Plateau	Within the Grid Cable Route Search Area and study area
	LCA Eii. Middle Valley East	Within the study area
District - South Kesteven Landscape Character Assessment	LCA Kesteven Uplands	Within the Grid Cable Route Search Area and study area

11.5.1.24 The published LCA are considered appropriate to undertake a proportionate assessment of likely significant effects. As part of the LCA assessment the LVIA will also consider the potential impacts on the setting of settlements within the study area. If significant effects are considered likely, then an assessment of the impacted settlement will be included within the ES.

Landscape features

11.5.1.25 Key landscape features which contribute to the character and value attached to the landscape include existing field boundaries and other vegetation within the Site, including hedgerows, trees and woodland, which may be directly affected by the Proposed Development. The LVIA will describe the patterns of landcover with reference to the AIA and habitat surveys included in the ES.

Views and visual amenity

11.5.1.26 Preliminary ZTV for the Solar Development Site are shown in **Figure 11.2: Zone of Theoretical Visibility (ZTV) and Proposed Viewpoints – Based on Digital Terrain Model data and Figure 11.3: Zone of Theoretical Visibility (ZTV) and Proposed Viewpoints – Based on DSM data**. These have been prepared to inform this EIA Scoping Report, based on the design information currently available. As the parameters for certain features of the Proposed Development have not yet been finalised, the location of ancillary buildings and structures have not been included in these preliminary ZTV. Further ZTV will be produced to accompany the ES.

11.5.1.27 The preliminary ZTV gives an indication of the potential visibility of the proposed current maximum parameters of the proposed Solar Development Site. This assumes that the Solar Development Site would be built out to its full extent and to a height of 4m AGL to represent a worse-case scenario. The location of On-Site Substation(s) has not yet been confirmed and will be modelled into future iterations of the ZTV to inform the assessment presented in the ES.

11.5.1.28 The ZTV included in this Scoping Report and initial fieldwork indicate that the Proposed Development is likely to be most visible within approximately 1km of the Solar Development Site with longer distance views generally restricted by landform and land cover such as hedgerows, woodland and built form. There is an increase in woodland cover to the north of the Solar Development Site which indicates limited

visibility from the north-west, north and north-east. Views from roads such as the A1 and the A606 have been identified, as well as views from rural lanes across the study area. These are generally limited to glimpsed views due to gaps in hedgerows, although some locations have been identified where large sections of road have no roadside vegetation. Pickworth Lane runs through the Solar Development Site from south-west to north-east between the A1 and Pickworth. Other key roads within the study area include:

- B1081, which joins the A1 at Empingham Lane and runs through Great Casterton to Stamford;
- Pickworth Road linking Great Casterton to Pickworth;
- Grantham Lane linking Empingham to the A1;
- Ryhall Road, linking Great Casterton to Ryhall; and
- Toilethorpe Road, linking Stamford and Great Casterton to Ryhall via Little Casterton.

11.5.1.29 There are several villages and isolated properties within the study area where there are potential views of the Proposed Development. The village of Pickworth is located closest to the Proposed Development adjacent the northern part of the Site. The villages of Greetham, Exton, Empingham, Tickencote, Little Casterton, Great Casterton and the town of Stamford are located within the study area and are unlikely to experience views of the Proposed Development, however they will be kept under review as further details become available. The ZTV indicates limited visibility from settlements to the north-west, north and north-east including Stretton, Clipsham, Holywell, Aunby and Careby; this is due to intervening topography and woodland cover and has been confirmed by initial fieldwork.

11.5.1.30 There are also several footpaths traversing the landscape, creating a network between settlements across the study area and through the Solar Development Site. Long distance walking routes include the Rutland Round located within the Solar Development Site, linking to other long distance routes which are generally located at the edge of the study area.

Visual receptor groups

11.5.1.31 Visual receptors are defined in GLVIA3 as:
“individuals and/or defined groups of people who have the potential to be affected by a proposal”.

11.5.1.32 Visual receptors for the Solar Development Site likely to experience views of the Proposed Development have been identified through interrogation of the preliminary ZTV, desk-top analysis of maps and Google Earth, and fieldwork surveys. Where a collection of visual receptors in the same category are likely to experience similar views, they have been grouped. These are set out in Table 11-15 below. Fieldwork identified that views were not likely from a number of locations within the study area, however these will be kept under review for inclusion in the ES as required, once the parameters for the Proposed Development including indicative location for the BESS, transformers, and On-Site Substations(s) have been confirmed. Receptors within the study area where views are not currently anticipated are identified separately within Table 11-15. Visual receptors for the Grid Cable Route Search Area will be described once further refinement has been completed.

11.5.1.33 The following visual receptor types have been identified:

- **Residents of local communities:** There are no residential receptors within the Solar Development Site. Groups of properties and isolated properties which are likely to have views of the Solar Development Site have been identified across the study area and there are some isolated properties in close proximity to the Solar Development Site.
- **Recreational receptors:** Recreational receptors include people travelling along the PRoW network, parts of which run through the Solar Development Site, visitors to Bloody Oaks Quarry SSSI and users of Woolfox Golf and Country Club and Greetham Valley Golf Course. Long distance paths Hereward Way, Macmillan Way and Viking Way run through the western part of the study area and the Rutland Round intersects the eastern part of the Solar Development Site.
- **Transport receptors:** Transport receptors include users of main roads, including the A1 Great North Road which intersects the Solar Development Site running north-west to south-east and users of local roads across the Solar Development Site and study area.
- **Employment receptors:** There are no specific employment receptors that have been identified for inclusion in the assessment. Whilst farmers are likely to experience views of the Solar Development Site, their susceptibility and consequently sensitivity is likely to be low as their interest and appreciation of views is secondary to their activities.

Table 11-15: Visual receptors (Solar Development Site)

Receptor type	Receptor or receptor groups
Visual receptors with potential views anticipated	
Residents of local communities	Residents of Pickworth.
	Residents of Taylor's Farm.
	Residents of Exton.
	Residents of Mounts Lodge and Home Farm.
	Residents of Great Casterton.
	Residents of Hill Top.
	Residents of Tickencote Warren.
	Residents of The Lodge.
Recreational	People travelling along Rutland Round long distance walking path.
	People travelling along PRoW network within Exton Park Registered Park and Gardens.
	People travelling along Bridleway RL:Clipsham/E163/2.
	People travelling along Bridleway RL:Pickworth/E135/1, Bridleway RL:Pickworth/E163/3 and Bridleway RL:Pickworth/E163/4.
	People travelling along Bridleway RL:Pickworth/E136/2 .
	People travelling along Bridleway RL:Greetham/E165/1. Users of Woolfox Golf and Country Club.
	People travelling along Bridleway RL:Pickworth/E136/3.
	People travelling along Byway Open to All Traffic RL:Ryhall and Belmesthorpe/E123/2.
	People travelling along Bridleway RL:Horn/E120/4.
	People travelling along Bridleway RL:Pickworth/E136/3.
	People travelling along Bridleway RL:Exton/E161/1.

Receptor type	Receptor or receptor groups
	People travelling along Bridleway RL:Empingham/E164/1.
	People travelling along Bridleway RL:Great Casterton/E136/1.
	People travelling along Bridleway RL:Tinwell/E226/1 and RL:Tinwell/E226/2.
Transport	People travelling along local road south from Hollywell Road.
	Users of rural lane to the north of Pickworth Road.
	People travelling along the A1.
	People travelling along the rural lane between Pickworth and the A1.
	People travelling rural lane (The Drift).
	People travelling along Pickworth Road.
	People travelling along Empingham Lane, B1081 and A1.
	People travelling along Steadfold Lane.
Visual receptors within study area where potential views are not anticipated (to be kept under review as the Proposed Development design develops)	
Residents of local communities	Residents of Stretton.
	Residents of Greetham.
	Residents of Stamford.
	Residents of Tinwell.
	Residents of Cuckoo Farm.
	Residents of properties along Grantham Lane.
	Residents of Tickencote.
	Residents of Little Casterton.
Recreational	People travelling along Footpath LL:Cast/11/3.
	People travelling along Restricted Byway LL:Care/1/1.
	People travelling along Bridleway RL:Clipsham/E135/2.
	People travelling along Footpath RL:Stretton/E132/1.
	People travelling along Footpath RL:Greetham/E157/1 and Footpath RL:Greetham/E156/5.
	People travelling along Footpath RL:Greetham/E157/1. Users of Greetham Valley golf course.
	People travelling along Footpath RL:Exton/E355/2, Footpath RL:Exton/E158/2, Footpath RL:Exton/E158/3 and Footpath RL:Exton/E156/6.
	People travelling along Footpath RL:Great Casterton/E166/3 .
	People travelling along Footpath RL:Horn/E357/1, Footpath RL:Horn/E162/2 and Footpath RL:Horn/E162/3.
	People travelling along Footpath RL:Exton/E160/3.
	Visitors to Bloody Oaks Quarry SSSI.
	People travelling along Footpath RL:Tickencote/E220/1.
	People travelling along Footpath RL:Empingham/E162/1, Footpath RL:Empingham/E218/2, Footpath RL:Empingham/E218/3 and Footpath RL:Empingham/E162/5.

Receptor type	Receptor or receptor groups
	People travelling along Footpath RL:Little Casterton/E177/1.
	People travelling along Footpath RL:Empingham/E220/3.
	People travelling along Footpath RL:Tinwell/E232/1 .
	People travelling along Bridleway RL:Essendine/E169/1.
Transport	People travelling along Hollywell Road.
	People travelling along Thistleton Lane and B668.
	People travelling along Grantham Lane.
	People travelling along Ryhall Road.
	People travelling along Empingham Lane.
	People travelling along Toilethorpe.
	People travelling along Little Casterton Road.
	People travelling along the A606.
	People travelling along B1176.

Viewpoints

11.5.1.34 Representative viewpoints will be used to assist in describing the baseline view and the effects likely to be experienced by visual receptor groups. These viewpoints have been selected, focused on the Solar Development Site, on the basis that they cover a range of viewing distances, elevations and orientations from locations in the study area with different viewing experiences of the Proposed Development, the Applicant will seek to agree viewpoints with relevant local planning authorities through the EIA process. In some cases, a viewpoint may therefore be representative of more than one visual receptor group. These viewpoints are set out in Table 11-16 and are shown in **Figure 11.2: Zone of Theoretical Visibility (ZTV) and Proposed Viewpoints – Based on Digital Terrain Model data** and **Figure 11.3: Zone of Theoretical Visibility (ZTV) and Proposed Viewpoints – Based on Digital Surface Model data**. The selection of representative viewpoints has been informed by the following criteria:

- accessibility to the public;
- number and sensitivity of people whose views could be affected;
- viewing direction, distance, openness and elevation; and
- nature of the viewing experience.

Table 11-16: Proposed viewpoints (of the Solar Development Site)

No.	Viewpoint location	Visual receptors
Viewpoints to be included within the assessment		
VP07	Along unnamed road between Holywell and Pickworth.	People travelling along the local road south from Hollywell Road.
VP09	Bridleway RL:Clipsham/E163/2, east of the A1.	People travelling along Bridleway RL:Clipsham/E163/2.
VP10	Bridleway RL:Pickworth/E135/1, west of Pickworth.	People travelling along Bridleway RL:Pickworth/E135/1, Bridleway RL:Pickworth/E163/3 and Bridleway RL:Pickworth/E163/4.
VP11	Bridleway RL:Pickworth/E136/2, north of Pickworth.	People travelling along Bridleway RL:Pickworth/E136/2 and residents at Pickworth.

No.	Viewpoint location	Visual receptors
VP12	Along the rural lane to south of Newell Wood.	People travelling along rural lane to south of Newell Wood.
VP14	Bridleway RL:Greetham/E165/1, within Woolfox Valley golf course.	People travelling along Bridleway RL:Greetham/E165/1. Users of Woolfox Golf and Country Club.
VP15	Along unnamed road between Holywell and Pickworth.	People travelling along the rural lane to the north of Pickworth Road and residents at Pickworth.
VP16	Bridleway RL:Pickworth/E136/3, south of Pickworth.	People travelling along Bridleway RL:Pickworth/E136/3 and residents at Pickworth.
VP18	Along the A1, east of Greetham Valley golf course.	People travelling along the A1.
VP19	Along the rural lane between Pickworth and the A1.	People travelling along Pickworth Lane between Pickworth and the A1.
VP20	Byway Open to All Traffic RL:Ryhall, on 'The Drift'.	People travelling along Byway Open to All Traffic RL:Ryhall and Belmesthorpe/E123/2. People travelling along 'The Drift'.
VP22	Bridleway RL:Horn/E120/4, to the west of A1.	People travelling along Bridleway RL:Horn/E120/4.
VP23	Pickworth Road, adjacent Taylor's Farm.	Residents of Taylor's Farm and people travelling along Pickworth Road.
VP25	Footpath RL:Horn/E357/1, adjacent Lower Lake and site of medieval village of Horn.	People travelling along Footpath RL:Horn/E357/1, Footpath RL:Horn/E162/2 and Footpath RL:Horn/E162/3. People travelling along PRoW network within Exton Park Registered Park and Gardens.
VP26	Bridleway RL:Pickworth/E136/3, north-west of Woodhead Castle.	People travelling along Bridleway RL:Pickworth/E136/3 and people travelling along the Rutland Round long distance walking route.
VP27	Bridleway RL:Exton/E161/1, eastern edge of Exton.	People travelling along Bridleway RL:Exton/E161/1 and residents at Exton.
VP28	Bridleway RL:Empingham/E164/1, west of the A1.	People travelling along Bridleway RL:Empingham/E164/1.
VP31	Bridleway RL:Great Casterton/E136/1 at the edge of Pickworth Road, near Mounts Lodge and Home Farm.	People travelling along Bridleway RL:Great Casterton/E136/1, people travelling along Pickworth Road and residents at Mounts Lodge and Home Farm.
VP36	Empingham Lane, northern edge of Tickencote.	Residents of Tickencote and people travelling along Empingham Lane, B1081 and A1.
VP38	Footpath RL:Empingham/E220/3, between Tickencote and Empingham.	People travelling along Footpath RL:Empingham/E220/3 and people travelling along Rutland Round long distance walking route.
VP39	Pickworth Road, north of Great Casterton.	Residents of Great Casterton and people travelling along Pickworth Road.
VP42	A606, south of Tickencote.	People travelling along Bridleway RL:Tinwell/E226/1 and RL:Tinwell/E226/2 and people travelling along the A606.
VP43	Footpath RL:Tinwell/E227/1, at edge of Steadfold Lane.	People travelling along Footpath RL:Tinwell/E227/1 and Footpath RL:Tinwell/E227/2 and people travelling along Steadfold Lane.
VP47	Pickworth Road, near Hill Top.	Residents of Hill Top and people travelling along Pickworth Road.
VP48	Tickencote Warren.	Residents of Tickencote Warren.

No.	Viewpoint location	Visual receptors
VP49	Along unnamed road between A1 and Pickworth, adjacent The Lodge.	Residents of The Lodge.
Viewpoints to be kept under review as design of the Proposed Development evolves, and if potential visibility is identified, then an assessment will be included		
VP01	Clipsham Road / Footpath LL:Cast/11/3.	People travelling along Footpath LL:Cast/11/3.
VP02	Restricted Byway LL:Care/1/1, north-east of Holywell.	People travelling along Restricted Byway LL:Care/1/1.
VP03	Bridleway RL:Clipsham/E135/2, south of Clipsham.	People travelling along Bridleway RL:Clipsham/E135/2.
VP04	Footpath RL:Stretton/E132/1, south of Stretton.	People travelling along Footpath RL:Stretton/E132/1 and Residents of Stretton.
VP05	Holywell Road south of Holywell Hall.	People travelling along Holywell Road.
VP06	Along B668 at Wood Lane / Thistleton junction.	People travelling along Thistleton Lane and B668.
VP08	Footpath RL:Greetham/E157/1, south-east of Greetham.	People travelling along Footpath RL:Greetham/E157/1 and Footpath RL:Greetham/E156/5 and residents at Greetham.
VP13	Footpath RL:Greetham/E157/1, within Greetham Valley golf course.	People travelling along Footpath RL:Greetham/E157/1. Users of Greetham Valley golf course.
VP17	Footpath RL:Exton/E355/2, south of Greetham.	People travelling along Footpath RL:Exton/E355/2, Footpath RL:Exton/E158/2, Footpath RL:Exton/E158/3 and Footpath RL:Exton/E156/6. People travelling along PRoW network within Exton Park Registered Park and Gardens.
VP21	Bridleway RL:Greetham/E165/2, to the east of the A1.	People travelling along Bridleway RL:Greetham/E165/2. Users of Woolfox Golf and Country Club clubhouse and car park.
VP24	Footpath RL:Great Casterton/E166/3, to the south of 'The Drift'.	People travelling along Footpath RL:Great Casterton/E166/3.
VP29	Footpath RL:Exton/E160/3, adjacent Cuckoo Farm.	People travelling along Footpath RL:Exton/E160/3 and residents at Cuckoo Farm.
VP30	Bloody Oaks Quarry Nature Reserve.	Visitors to Bloody Oaks Quarry SSSI.
VP32	Grantham Lane, near Empingham crossroads.	Residents of properties along Grantham Lane and people travelling along Grantham Lane.
VP33	Ryhall Road.	People travelling along Ryhall Road.
VP34	Footpath RL:Tickencote/E220/1, at edge of Empingham Lane.	People travelling along Footpath RL:Tickencote/E220/1 and people travelling along Empingham Lane.
VP35	Footpath RL:Empingham/E162/1, north of Empingham.	People travelling along Footpath RL:Empingham/E162/1, Footpath RL:Empingham/E218/2, Footpath RL:Empingham/E218/3 and Footpath RL:Empingham/E162/5.
VP37	Footpath RL:Little Casterton/E177/1, at northern edge of Little Casterton.	People travelling along Footpath RL:Little Casterton/E177/1 and residents at Little Casterton.
VP40	Tolethorpe, between Great Casterton and Little Casterton.	People travelling along Tolethorpe.
VP41	Little Casterton Road, northern edge of Stamford.	Residents of Stamford and people travelling along Little Casterton Road.
VP44	Footpath RL:Tinwell/E232/1, at northern edge of Tinwell.	People travelling along Footpath RL:Tinwell/E232/1 and residents at Tinwell.
VP45	B1176, south of Aunby.	People travelling along B1176.

No.	Viewpoint location	Visual receptors
VP46	Bridleway RL:Essendine/E169/1, west of Essendine.	People travelling along Bridleway RL:Essendine/E169/1 and people travelling along B1176.

Visual representations

- 11.5.1.35 Photographs taken during fieldwork surveys will be provided in the ES to help demonstrate the nature of baseline views including the extent of existing screening. These photographs will be presented as ‘Type 1 annotated photographs’¹², as defined in Landscape Institute TGN 06/19.
- 11.5.1.36 ‘Type 4 photomontages’¹³ will also be provided from a selection of viewpoints to illustrate the likely extent and nature of changes in baseline views in winter (year 1 of operation, worst-case) and summer (year 15 of operation, residual effects following the establishment of proposed planting). All photographs and photomontages will be prepared in accordance with Landscape Institute TGN 06/19: Visual representation of development proposals.
- 11.5.1.37 Viewpoints 7, 9, 11, 19, 20, 23, 26, 27, 31, and 39 are proposed for the production of photomontages across the study area. These viewpoints cover a range of receptors and parts of the Proposed Development where significant effects are considered more likely. The Applicant will seek to agree these viewpoints with relevant local authorities.

11.5.2 Future baseline

- 11.5.2.1 It is noted that the future baseline within the study area has the potential to change as a result of the construction of nearby local developments, either which change the landscape character or views within the study area, or which introduce new receptors into it.
- 11.5.2.2 The future baseline will consider other developments of a similar type and scale to the Proposed Development that will be delivered prior to commencement of construction.
- 11.5.2.3 Within the future baseline, the potential for new visual receptors where these are likely to be developed prior to construction of the Proposed Development, including consideration of sites allocated within relevant DPD e.g. for new residential development or for sustainable urban extensions will be considered.
- 11.5.2.4 There are no changes identified within the **Section 6: Climate Change Resilience** (refer to Table 6.5) that could alter the character of the landscape prior to commencement of construction that would need to be considered in the future LVIA baseline.

¹² Annotated Viewpoint Photograph: Reproduced at a size which aids clear understanding of the view and context, these simply show the extent of the site within the view and annotate any key features within the view. Type 1 is the most basic form of visual representation with a focus on the baseline information. Landscape Institute TGN 06/19: Visual representation of development proposals

¹³ Photomontage / Photowire (survey / scale verifiable): Type 4 photomontages and / or photowires require the use of equipment and processes which provide quantifiable verification data, such that they may be checked for accuracy. Type 4 visualisations represent the highest level of accuracy and verifiability for use in the most demanding of situations. Landscape Institute TGN 06/19: Visual representation of development proposals

11.6 Potential Impacts and Effects

11.6.1.1 The Proposed Development has the potential to affect landscape and visual receptors during construction, in operation and during decommissioning.

11.6.2 Construction

11.6.2.1 The assessment of landscape and visual construction effects will identify and assess the temporary impacts which arise because of activities and elements that are unique to the construction phase. Sources of temporary construction impacts (the construction activities and processes) on landscape and visual receptors include:

- disturbance of natural landform through excavation and temporary storage of soils;
- temporary loss of vegetation where replanting and regrowth would be anticipated;
- the presence of plant and construction compounds including welfare facilities, and increased movement of vehicles and workers;
- the presence of construction machinery and activity to construct solar PV modules, associated structures and for the laying of Interconnecting Cabling and cables for the grid connection;
- temporary lighting of the works and construction compounds for safety and security; and
- temporary diversions to PRow¹⁴.

11.6.3 Operation

11.6.3.1 Sources of potentially significant temporary and permanent operational effects (e.g. the loss of, or changes to, existing landscape features or characteristics, or the addition of new infrastructure or features within the landscape or view) on landscape and visual receptors include:

- the presence and massing of the solar PV modules and associated structures across the Solar Development Site;
- replacement of solar infrastructure and BESS during the operational lifetime;
- changes to land cover and new planting across the Solar Development Site and Grid Cable Route Search Area; and
- security lighting across the Solar Development Site, the level and location of which is currently not determined.

11.6.4 Decommissioning

11.6.4.1 Landscape and visual impacts arising from decommissioning of the Proposed Development are considered to be no greater than those identified during the construction phase and will therefore be assessed as part of the construction effects assessment as a reasonable worst-case scenario.

11.6.4.2 The Proposed Development is assumed to be substantially reversible leaving little sign of its existence once decommissioned. It is assumed that vegetation planted for landscaping and ecological purposes would be left in-situ on handback of land to landowners following decommissioning (with the exception of grassland planted under

¹⁴ The visual impacts of the Proposed Development in relation to PRow and promoted recreational routes are considered in this section. Other impacts to users of PRow and recreational routes are considered in **Section 13: Socio-economics** (severance to communities and impacts to users in relation to journey times) and **Section 14: Transport and Access** (impacts to users of the public highway is considered).

the Panel Areas).

11.7 Design, Mitigation and Enhancement Measures

11.7.1 Embedded Measures

- 11.7.1.1 The Proposed Development is currently evolving through an environment-led, iterative design process (as described in **Section 2: Site Description and the Proposed Development**). At the outset of this design process the Applicant has set out a series of Design Principles (refer to **Section 2.4: Environmental Design**) which they are seeking to achieve, as far as reasonably practicable, in the design of the Proposed Development.
- 11.7.1.2 Consideration of the results of the ongoing LVIA work will be key to achieving the criteria for good design set out in section 4.7 of the NPS EN-1 (and Draft NPS-EN1) and this has been a key consideration from the outset. The Proposed Development is being designed with regard to a design vision and a set of Design Principles, informed by the LVIA. These are currently under development and will be summarised in the ES that accompanies the Application.
- 11.7.1.3 The most effective mitigation for adverse landscape and visual effects is to avoid impacts at source as part of the design process, for example through the siting of infrastructure or undergrounding of cabling. This is being considered as part of the scheme development process. Where effects cannot be avoided, the hierarchy is that impacts should be minimised, rectified, reduced or finally offset. All landscape mitigation is therefore considered embedded (primary). This will be supported by a comprehensive reinstatement strategy (post construction) and appropriate management measures for landscape and ecology. Beneficial effects will be maximised as far as reasonably practicable, for example through the design of multi-functional green infrastructure which provides a range of ecosystem services to deliver Environmental Net Gain (of which BNG is a key component).
- 11.7.1.4 Mitigation principles to avoid or minimise potential construction effects will focus on reducing the duration and footprint of construction activity; locating development in the least prominent positions; and, as far as reasonably practicable, maximising the distance from nearby visual receptors. Other measures which will be considered include positioning the works to make use of existing natural features such as landform and vegetation to screen views.
- 11.7.1.5 The Proposed Development will be designed to avoid or minimise the loss of existing landscape features of value, such as trees, woodland, and hedgerows as far as reasonably practicable. Any loss will be mitigated with replacement planting as close to the location, type and character of the existing vegetation as practicable, to reduce effects resulting from such losses. The design will also identify opportunities for landscape restoration and enhancement, by introducing planting which repairs or reinforces existing vegetation patterns and contributes to BNG.
- 11.7.1.6 Loss of AW will be avoided, as far as reasonably practicable in line with section 5.4.53

of NPS EN-1¹⁵, which states that:

“the Secretary of State should not grant development consent for any development that would result in the loss or deterioration of irreplaceable habitats including ancient woodland and the loss of ancient or veteran trees found outside ancient woodland, unless there are wholly exceptional reasons for the development, and a suitable compensation strategy exists”.

- 11.7.1.7 It will take time for planting proposed to reinstatement vegetation lost as a consequence of construction or provided to mitigate other effects of the Proposed Development, for example for visual screening. Therefore, landscape and visual effects will be assessed at year 1 and year 15 of operation. Effects which persist at year 15 of operation will be considered residual effects. Opportunities for advanced planting will be sought where this is reasonably practicable, as this would allow for early establishment of mitigation.
- 11.7.1.8 The LVIA is informing the iterative design process of the Proposed Development, specifically with regards to the siting, layout and colour tones of the solar panels and associated structures to reduce their visibility and perceived scale and mass within the landscape, as well as identifying mitigation to reduce landscape and visual effects. The LVIA is also informing the identification of opportunities for new green infrastructure such as new habitats and permissive recreational routes.
- 11.7.1.9 The Applicant will set out the design vision, principles, and inter-relationships between different environmental elements in the Application. Information will be included to explain how these elements will be designed to integrate with the wider nature network, through the detailed design and how they will be implemented, maintained and monitored. This will include consideration of siting relative to existing landscape character, landform and vegetation, as set out in paragraph 4.7.6 of NPS EN-1 (and Draft NPS EN-1). The type, extent and functions of the proposed mitigation will be illustrated set out on plans which will accompany the Application.
- 11.7.1.10 The relevant landscape and visual mitigation and enhancements, and how the LVIA has informed the design process to minimise adverse effects, will be summarised in the ES.
- 11.7.1.11 Embedded measures can comprise modifications to the design of a scheme made during the pre-application phase that seek to avoid or minimise impacts, that are an inherent part of the design and do not require additional action to be taken. Therefore, embedded measures may comprise, or be informed by, the Design Principles as well as other mitigation measures.
- 11.7.1.12 Embedded measures for the Proposed Development relevant to LVIA including those set out in **Section 2.4: Environmental Design** are proposed to include:
- The construction compounds will be located on low diversity habitat.
 - The choice to use underground cables and careful consideration of cable routing which will be given to avoid or minimise impacts on valued landscape features and habitats.
 - 15m buffer from solar development /fencing to ancient and veteran trees, informed by biodiversity requirements and arboricultural surveys.

¹⁵ Draft NPS EN-1 wording also extends to consider ancient and veteran trees, as follows: *“The Secretary of State should not grant development consent for any development that would result in the loss or deterioration of any irreplaceable habitats, including ancient woodland, and ancient and veteran trees unless there are wholly exceptional reasons and a suitable compensation strategy exists”.*

- 15m buffer from solar development /fencing to trees/ woodland, informed by biodiversity requirements and arboricultural surveys.
- Retention of all veteran and ancient trees and, as far as reasonably practicable, Grade A trees (highest quality).
- An appropriate buffer will be maintained between residential properties and construction areas.
- Loss of woodland and hedgerow will be kept to a minimum and only to facilitate access points, cable routing and fencing. Where such loss is unavoidable, vegetation will be reinstated following construction as far as reasonably practicable.
- Access tracks and cable routing will be located to pass through existing gates and gaps in hedgerows where feasible.
- The Proposed Development would generally not be lit. Use of artificial lighting would be limited to where it is required for security purposes e.g. around electrical infrastructure and potentially at other pieces of critical infrastructure. It is anticipated that the lighting will be controlled via infrared motion sensor controls and so the Solar Development Site will not be lit at night. All lighting will be designed and installed in a manner which minimises impact.
- New planting to provide visual screening, to break-up of the extent of development and to link existing habitats will be provided.

11.7.1.13 As far as reasonably practicable, enhancement opportunities will be sought in the development of the environmental masterplan to:

- connect and extend existing woodland and hedgerows to strengthen the landscape pattern and habitat connectivity as part of the green infrastructure and nature network;
- achieve early establishment and maximise visual screening through advanced planting;
- enhance existing PRoW and permissive paths;
- enhance existing hedgerow in poor condition and reinforce with planting and management, where appropriate;
- enhance habitats in consultation with landowners in the context of wider environmental net gain; and
- reinforce the existing landscape pattern, including enhancement of existing field boundaries where appropriate.

11.7.2 Management Plans

11.7.2.1 A suite of management plans will be in place for the Proposed Development. Outline versions of these management plans will incorporate standard industry best practice, considered as embedded measures, as well as any further mitigation that is deemed required as a result of the EIA process. These will be submitted with the Application to secure the commitments contained within.

11.7.2.2 Those relevant to landscape and visual amenity include:

- oCEMP;
- oCTMP;
- oOEMP;
- oLEMP; and
- oDEMP.

- 11.7.2.3 The oLEMP will include general operational measures alongside those specific to landscape and ecology.
- 11.7.2.4 Appropriate Requirements will be included in the draft DCO to secure development of these outline versions of management plans to full versions that would be submitted to the relevant planning authority for approval.

11.8 Likely Significant Effects

11.8.1 Construction

- 11.8.1.1 Effects during construction would be temporary and adverse and these effects will be assessed at the national, district and local level.

Effects on the landscape

- 11.8.1.2 At the national scale, these effects would be focused within NCA75: Kesteven Uplands and effects on this receptor will be assessed in the ES.
- 11.8.1.3 A small part of the Proposed Development study area would be located within NCA 74: Leicestershire and Nottinghamshire Wolds. Due to there being no physical impacts to the NCA and given the small proportion of the Proposed Development study area located within the large NCA, it is considered that significant effects are unlikely. Therefore, an assessment of construction effects on NCA 74 has been **Scoped Out** of the assessment.
- 11.8.1.4 At the district scale, the following LCT and LCAs defined with the Rutland Landscape Character Assessment¹⁹⁹ and South Kesteven Landscape Character Assessment have the potential to experience significant effects relating to the construction of the Proposed Development:
- LCT D. Rutland Plateau;
 - LCT E. Welland Valley;
 - LCA Di. Cottesmore Plateau;
 - LCA Dii. Clay Woodlands;
 - LCA Diii. Gwash Valley;
 - LCA Div. Ketton Plateau;
 - LCA Eii. Middle Valley East; and
 - LCA Kesteven Uplands.
- 11.8.1.5 LCT D. Rutland Plateau, and LCA Dii. Clay Woodland are located within the Solar Development Site and Grid Cable Route Search Area. LCA Diii. Gwash Valley, LCA Div. Ketton Plateau and LCA Kesteven Uplands are located within the Grid Cable Route Search Area.
- 11.8.1.6 LCT E. Welland Valley, LCA Di. Cottesmore Plateau and LCA Eii. Middle Valley East are located outside the Solar Development Site and Grid Cable Route Search Area with the potential for impacts to their setting.
- 11.8.1.7 All of the LCT and LCAs outlined above will be assessed in the ES.

11.8.1.8 Potential for significant effects on people's views and visual amenity due to the construction of the Proposed Development are anticipated for the following visual receptor groups:

- residents of Pickworth;
- residents of Taylor's Farm;
- residents of Exton;
- residents of Tickencote;
- residents of Hill Top;
- residents of Tickencote Warren;
- residents of The Lodge;
- residents of Great Casterton;
- residents of Mounts Lodge;
- residents of Home Farm;
- people travelling along Rutland Round long distance walking route;
- people travelling along PRow network within Exton Park Registered Park and Gardens;
- people travelling along Bridleway RL:Pickworth/E135/1;
- people travelling along Bridleway RL:Pickworth/E136/2;
- people travelling along Bridleway RL:Pickworth/E136/3;
- people travelling along Bridleway RL:Pickworth/E163/3;
- people travelling along Bridleway RL:Pickworth/E163/4;
- people travelling along Bridleway RL:Clipsham/E163/2;
- people travelling along Bridleway RL:Greetham/E165/1;
- people travelling along Bridleway RL:Tinwell/E226/1;
- people travelling along Footpath RL:Tinwell/E227/1;
- people travelling along Footpath RL:Tinwell/E227/2;
- people travelling along RL:Tinwell/E226/2;
- people travelling along Bridleway RL:Horn/E120/4;
- people travelling along Footpath RL:Horn/E162/2;
- people travelling along Footpath RL:Horn/E162/3;
- people travelling along Footpath RL:Horn/E357/1;
- people travelling along Bridleway RL:Exton/E161/1;
- people travelling along Bridleway RL:Empingham/E164/1;
- people travelling along Footpath RL:Empingham/E220/3;
- people travelling along Bridleway RL:Great Casterton/E136/1;
- people travelling along Byway Open to All Traffic RL:Ryhall and Belmesthorpe/E123/2;
- users of Woolfox Golf and Country Club;
- people travelling along the local road south from Hollywell Road;
- people travelling along the rural lane to south of Newell Wood;
- people travelling along the rural lane to the north of Pickworth Road;
- people travelling along the A1;
- people travelling along Pickworth Lane between Pickworth and the A1;
- people travelling along 'The Drift';
- people travelling along Pickworth Road;
- people travelling along Empingham Lane;
- people travelling along B1081;

- people travelling along the A606; and
- people travelling along Steadfold Lane.

- 11.8.1.9 The above is a preliminary list, based on an initial appraisal to support this EIA Scoping Report and does account for mitigation measures which will be embedded in the design of the Proposed Development, which is in ongoing.
- 11.8.1.10 Further fieldwork and stakeholder engagement may result in the addition of further viewpoints and the micro-siting of identified viewpoints, and this will be set out in the ES.
- 11.8.1.11 Residents of local communities and recreational receptors within the study area could experience extensive changes to the character and composition of the view as a result of construction activities. Some residential and recreational receptors would view the works close up, whilst other residential and recreational receptors would experience the works in the distance. However, for both distant and nearby receptors the construction works associated with the Proposed Development could change large parts of the landscape within the view with the works becoming a dominant feature. Therefore, the visual amenity of residential and recreational receptors has the potential to be significantly affected by these works. The assessment of effects on residential and recreational receptors as a result of the construction works are therefore Scoped In and will be assessed and reported in the ES.
- 11.8.1.12 Transport receptors are generally less sensitive to changes in their view as their interest or appreciation of the view is secondary to the activity they are doing. Furthermore, their period of exposure to the view is limited due to the speed of travel. However, due to the rural nature of their view the visual amenity of transport receptors has the potential to be significantly affected by the construction activities. The assessment of effects on transport receptors is therefore Scoped In and will be assessed and reported in the ES.

11.8.2 Operation

- 11.8.2.1 Landscape effects during operation would be medium to long-term and are likely to be largely adverse. They are likely to include effects on landscape features and patterns if any vegetation requires removal to accommodate access tracks or other developments and potential beneficial effects resulting from new habitats within the Solar Development Site which could have wider benefits. The presence of solar PV modules and associated structures would also be likely to result in effects relating to landscape character. **Section 2: Site Description and the Proposed Development** outlines that replacement of some components will be required during the operational phase, including the replacement of solar infrastructure and BESS. The effects of replacement activities are anticipated to be no greater than the construction phase because effects would be controlled and managed through appropriate management plans.

Effects on the landscape

- 11.8.2.2 Landscape receptors at a national and district scale likely to experience significant effects as a result of the operational Proposed Development would be the same as those identified for construction in **Section 11.8.1: Construction**.
- 11.8.2.3 The significance of landscape effects would be likely to reduce between year 1 of

operation, when the proposed planting would be young and low in height and year 15 of operation, when it would be fully established. It is possible that some beneficial effects may arise by applying the criteria for good design and the delivery of environment net gain. The assessment of operational effects on landscape character are therefore Scoped In for further assessment in the ES.

Effects on views and visual amenity

- 11.8.2.4 Visual receptors likely to experience significant effects as a result of the operational Proposed Development would be the same as those identified for construction in **Section 11.8.1: Construction**.
- 11.8.2.5 The significance of visual effects would be likely to reduce between year 1 of operation, when the proposed planting would be young and low in height and year 15 of operation, when it would be fully established. It is possible that some beneficial effects may arise, for example where planting proposed as mitigation for the Proposed Development also screens views of existing infrastructure.
- 11.8.2.6 Residential and recreational receptors within the study area could experience extensive changes to the character and composition of the view as their view of rural countryside would become more industrialised. Some residents of local communities and recreational receptors would view the proposed solar panels in close proximity, whilst others would see the panels in the distance. For both, the Proposed Development could change large parts of the landscape within the view with the panels becoming a dominant feature. Therefore, the visual amenity of residents of local communities and recreational receptors has the potential to be significantly affected. These effects are therefore Scoped In for further assessment in the ES. As outlined in section 11.4.9.13, RVAA will be undertaken if major adverse residual effects are identified.
- 11.8.2.7 Transport receptors are generally less sensitive to changes in their view as their interest or appreciation of the view is secondary to the activity they are doing. Furthermore, their period of exposure to the view is limited due to the speed of travel. However, due to the rural nature of their view the visual amenity of transport receptors has the potential to be significantly affected. The assessment of effect on transport receptors is therefore Scoped In for further assessment in the ES.

11.8.3 Decommissioning

- 11.8.3.1 The effects on the landscape from decommissioning of the Proposed Development are considered likely to be no greater than those identified during the construction phase which represents a likely worst-case scenario. This is because the activities relating to decommissioning would be similar to construction but carried out in the context of enhanced landscape mitigation. The cables for the grid connection will likely be left in situ. It is assumed that vegetation planted for landscaping and ecological purposes would be left in-situ on handback of land to landowners following decommissioning (with the exception of grassland planted under the Panel Areas). The assessment of effects from decommissioning are Scoped In for further assessment in the ES.

11.8.4 Night-time lighting

- 11.8.4.1 Impacts on the landscape and on people's views and visual amenity resulting from the

introduction of lighting during construction, operation and decommissioning which have the potential to result in significant effects will be assessed in the ES. Night-time lighting effects are Scoped In for further assessment for residents of local communities only as it assumed that PRow are not used during hours of darkness. A subjective assessment using GLVIA3 will be used to qualitatively assess the impacts from night-time lighting on residential visual receptors.

11.9 Assumptions, Limitations and Uncertainties

- 11.9.1.1 This section sets out the assumptions which have been made and the limitations which inform the scope of the LVIA.
- 11.9.1.2 All fieldwork will be undertaken from publicly accessible locations. Professional judgement will be used to assess residents' views, aided by maps, aerial photography and fieldwork observations.
- 11.9.1.3 For the construction phase assessment, the assumptions are that construction activity will be undertaken across the Solar Development Site at the same time and during winter. This assumes that existing deciduous vegetation is not in leaf, thereby representing a worst-case assessment scenario.
- 11.9.1.4 For the assessment of effects at year 15 of operation, the assumption is that all new planting would have successfully established, having increased in height by 4.5 metres since year 1 of operation (i.e. 30cm of growth per year).
- 11.9.1.5 The solar panels and associated structures and equipment would be removed in a manner similar to the construction phase, requiring machinery and localised excavation. The proposed green infrastructure would not be removed as part of decommissioning (with the exception of grassland planted under Panel Area). Therefore, the effects on landscape and visual receptors would be the same as and not greater than the construction phase. The conclusions of the construction assessment will stand for the decommissioning effects as a reasonable worst-case scenario and there will therefore be no separate decommissioning assessment.
- 11.9.1.6 There are uncertainties at this stage regarding the layout, siting and heights of the solar panels, substations and associated structures. The LVIA study area and landscape and visual receptors considered will be reviewed accordingly in relation to the heights of these features, informed by further ZTV.
- 11.9.1.7 The assessment will be based on the maximum parameters of the Proposed Development, taking account of embedded mitigation and Design Principles, to represent a reasonable worst-case.
- 11.9.1.8 Impacts to visual amenity resulting from the introduction of lighting during construction, operation and decommissioning which are likely to result in significant effects will be assessed in the ES. Night-time lighting effects will be considered for residential visual receptors only as it assumed that PRow are not used during hours of darkness.
- 11.9.1.9 The cable routing to the National Grid Substation currently comprises a number of routes as shown by the Grid Cable Route Search Area and is subject to refinement as the project progresses. Therefore, as noted in **Section 11.2.3: Study area**, a preliminary

study area of 500m will be taken forward which accounts for all areas shown on **Figure 11.1: Published Landscape Character Areas** as ‘Grid Cable Route Search Area’. The study area and applicable landscape and visual receptors will be refined once routing is refined as the ES progresses.

- 11.9.1.10 Operational effects will consider the replacement of solar infrastructure and BESS during the lifetime of the Proposed Development. The effects of replacement activities are anticipated to be no greater than the construction phase because effects would be controlled and managed through appropriate management plans. Assumptions regarding replacement will be confirmed in the ES.

11.10 Summary

- 11.10.1.1 A summary of those matters proposed to be Scoped In or **Scoped Out** of the assessment are set out Table 11-17 below.

Table 11-17: LVIA scoping summary

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Landscape Assessment	All	Scoped in	Assessment of published national, and district character areas as detailed below to be Scoped In.
National Character Areas			
NCA 74: Leicestershire and Nottingham Wolds	n/a	Scoped Out	A small part of the total NCA area is located within the western part of the study area. It is therefore unlikely that there would be significant effects based on the large NCA and lack of physical impacts within the NCA.
NCA 75: Kesteven Uplands	All	Scoped In	NCA assessment to be included for all phases. The NCA is located within the Solar Development Site, Grid Cable Route Search Area and study area.
District LCT and LCA			
LCT D. Rutland Plateau	All	Scoped In	LCT assessment to be included for all phases. LCT derived from Rutland Landscape Character Assessment. The LCT is located within the Solar Development Site, Grid Cable Route Search Area and study area.
LCT E. Welland Valley	All	Scoped In	LCT assessment to be included for all phases. LCT derived from Rutland Landscape Character Assessment. The LCT is located within the study area.
LCA Di. Cottesmore Plateau	All	Scoped In	LCA assessment to be included for all phases. LCA derived from Rutland Landscape Character Assessment. The LCA is located within the study area.
LCA Dii. Clay Woodlands	All	Scoped In	LCA assessment to be included for all phases. LCA derived from Rutland Landscape Character Assessment. The LCA is located within the Solar Development

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
			Site, Grid Cable Route Search Area and study area.
LCA Diii. Gwash Valley	All	Scoped In	LCA assessment to be included for all phases. LCA derived from Rutland Landscape Character Assessment. The LCA is located within the Grid Cable Route Search Area and study area.
LCA Div. Ketton Plateau	All	Scoped In	LCA assessment to be included for all phases. LCA derived from Rutland Landscape Character Assessment. The LCA is located within the Grid Cable Route Search Area and study area.
LCA Eii. Middle Valley East	All	Scoped In	LCA assessment to be included for all phases. LCA derived from Rutland Landscape Character Assessment. The LCA is located within the study area.
LCA Kesteven Uplands	All	Scoped In	LCA assessment to be included for all phases. LCA derived from South Kesteven Landscape Character Assessment. The LCA is located within the Grid Cable Route Search Area and study area.
Visual Amenity Assessment	All	Scoped In	Assessment of visual receptors outlined in Section 11.5: Baseline Conditions to be included for all phases. This will include an assessment based on winter and summer conditions. Night-time effects will be assessed for residential receptors. Specific visual receptors likely to experience views of the Grid Cable Route Search Area have not yet been identified as refinement has not been completed. Visual receptors will be identified, agreed with the local planning authorities and included within the assessment once refinement has been completed.

12. Noise and Vibration

12.1 Introduction

- 12.1.1.1 This section outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in **Section 2: Site Description and the Proposed Development**, in respect of noise and vibration.
- 12.1.1.2 This section sets out the relevant legislation, policy, standards and guidance, study area, baseline conditions, and a high-level assessment of potential impacts for noise and vibration.
- 12.1.1.3 This section is supported by the following figure:
- **Figure 12-1: Noise and Vibration Study Area.**

12.2 Study Area and Data Sources

12.2.1 Desk-top sources used

- 12.2.1.1 The following desk-top sources have been used to inform the likely existing baseline conditions of the study area:
- Google Earth satellite imagery²¹⁹; and
 - Department of environmental, food and rural affairs (Defra) Round 4 noise maps²²⁰.

12.2.2 Study area

Direct impacts

- 12.2.2.1 For construction noise, a study area of 300m around the Site is considered appropriate to assess impacts to both human and ecological receptors where relevant, based on precedent from other projects and the limitations of prediction methods beyond this distance, as noted in British Standard (BS) 5228-1²²⁷. For construction vibration, a study area of 100m is considered to be appropriate to assess potential construction vibration effects on people and buildings, since it is unlikely that significant effects from vibration, including piling, would occur at distances greater than 100m from construction activity.
- 12.2.2.2 For operational noise, a study area of 1km around the Solar Development Site is proposed to assess impacts arising from operational sources of the Proposed Development. Sound levels are expected to be well below those likely to cause a risk of a likely significant effect at, or beyond, 1km. Operational vibration is proposed to be **Scoped Out** of this assessment since the nature of the plant is unlikely to transmit any appreciable vibration into the ground and the distances to any sensitive receptors will attenuate any residual vibration.
- 12.2.2.3 The study area for direct impacts is presented in **Figure 12.1: Noise and Vibration Study Area**.

Indirect impacts

- 12.2.2.4 Indirect impacts of road traffic noise and vibration are those arising at greater distances from the Site and may result from changes in traffic flows on existing roads that are subject to a traffic noise change of more than 1dB(A) due to one or more of a combination of flow, speed or composition changes.
- 12.2.2.5 Construction traffic routes, diversions or road closures that may occur during the construction phase will be considered where a traffic noise change of 1dB(A) or more is indicated. In line with the DMRB LA 111²²¹, the study area would extend to 50m around such affected roads.
- 12.2.2.6 Indirect impacts of operational road traffic noise are proposed to be **Scoped Out** due to the low levels of traffic expected to visit the Site during operation described in **Section 2.6: Operational Activities**.

12.3 Legislation, Planning Policy Context and Guidance

- 12.3.1.1 Legislation relevant to the Proposed Development with regard to noise and vibration is outlined below:
- Control of Pollution Act 1974 Part III Noise²²²; and
 - Environmental Protection Act 1990²²³.
- 12.3.1.2 Policies relevant to the Proposed Development with regard to noise and vibration are outlined below. Local planning policies relevant to this topic will be identified in the ES that accompanies the Application:
- Overarching National Policy Statement (NPS) for Energy (EN-1);
 - Draft Overarching NPS for Energy (EN-1) (2025);
 - NPS for Renewable Energy Infrastructure (EN-3);
 - Draft NPS for Renewable Energy Infrastructure (EN-3) (2025);
 - NPS for Electricity Networks Infrastructure (EN-5);
 - Draft NPS for Electricity Networks Infrastructure (EN-5) (2025);
 - National Planning Policy Framework (NPPF); and
 - Noise Policy Statement for England (NPSE)²²⁴.
- 12.3.1.3 Standards and guidance relevant to the Proposed Development with regard to noise and vibration are outlined below:
- Planning Practice Guidance (PPG) Noise²²⁵;
 - British Standard 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound (BS 4142)²²⁶;
 - British Standard 5228:2009+A1:2014 Part 1 (Noise) and Part 2 (Vibration): Code of practice for noise and vibration control on construction and open sites (BS 5228)²²⁷;
 - British Standard 7445-1 Description and measurement of environmental noise – Part 1; Guide to quantities and procedures (BS 7445-1)²²⁸;
 - British Standard 7385-2:1993 Evaluation and measurement for vibration in buildings - Guide to damage levels from groundborne vibration (BS 7385-2)²²⁹;
 - British Standard 6472-1:2008 Guide to evaluation of human exposure to vibration in buildings – vibration sources other than blasting (BS 6472-1)²³⁰;

- International Organisation for Standardisation (ISO) 9613-2 Acoustics-Attenuation of sound during propagation outdoors²³¹;
- Highways England (2020) DMRB LA 111 Noise and Vibration²²¹;
- Department for Transport (1988) Calculation of Road Traffic Noise (CRTN)²³²;
- World Health Organization (WHO) Guidelines for Community Noise (1999)²³³;
- Environmental Noise Guidelines for the European Region (2018)²³⁴;
- Night Noise Guidelines for Europe (2009)²³⁵;
- Institute of Environmental Management and Assessment (IEMA) - Guidelines for Environmental Noise Impact Assessment²³⁶;
- Association of Noise Consultants (ANC) Green Book: Environmental sound measurement guide²³⁷; and
- Procedure for the assessment of low frequency noise disturbance NANR45²³⁸.

Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table.

- 12.3.1.4 The Planning Inspectorate provides non-statutory guidance on the scope of NSIP solar projects. Information is included on noise and vibration receptors and the anticipated impacts. This is discussed further within **Section 12.5: Baseline Conditions** and **Section 12.6 Potential Impacts** below.
- 12.3.1.5 The guidance also provides examples of the types of evidence/ assumptions to be provided in the EIA Scoping Opinion request as follows:
- anticipated noise generating activities and locations during each phase of the development, for example piling, removal of piles, trenching, if tracker panels are proposed;
 - anticipated maximum duration of construction activities and timing across all phases;
 - anticipated plant and non-road mobile machinery types for all phases;
 - vehicle routing including access locations (where known);
 - vehicle type and number of movements for all phases;
 - likelihood of exceedance of relevant thresholds set out in the appropriate guidance on the need to undertake an assessment of effects (for example IEMA guidance); and
 - identification of the locations of any sensitive receptors.
- 12.3.1.6 Evidence relied upon in scoping out aspects of the assessment are provided within **Section 12.7: Design, Mitigation and Enhancement Measures** and **Section 12.8: Likely Significant Effects**. Assumptions and any uncertainties are listed in **Section 12.9: Assumptions, Limitations and Uncertainties**. The guidance also provides examples of the types of proposed mitigation:
- best practice noise management measures set out in oCEMP, oOEMP and oDEMP; and
 - buffer zones and/ or screening measures.

12.4 Assessment Methodology

- 12.4.1.1 This section sets out the proposed methodology for the assessment of noise effects from construction and operational activities.

12.4.2 Surveys undertaken and proposed

- 12.4.2.1 No baseline surveys have been completed at the time of writing. Environmental sound level surveys will be undertaken to establish the baseline sound environment at locations representative of the nearest noise sensitive receptors (NSR). Consultation will be undertaken with RCC, LCC and SKDC, prior to undertaking the surveys to confirm the measurement locations and survey methodology.
- 12.4.2.2 Survey procedures will follow the guidance in the Green Book: Environmental Noise Measurement Guide, BS 7445-1²²⁸ and BS 4142²²⁶. Meteorological measurements will be taken in parallel with sound level measurements (where possible) to verify that appropriate conditions prevail during the surveys.

12.4.3 Construction noise

- 12.4.3.1 The assessment of construction noise will be undertaken in line with the methodologies presented in BS 5228-1²²⁷. The assessment will be carried out for the construction works that may cause the greatest impact within each phase of works at the closest sensitive receptors. This includes site preparation, solar PV infrastructure construction, cable installation, testing and commissioning and site reinstatement and landscaping/ habitat creation. Activities during construction are likely to include ground works and excavation, concrete pouring, piling, erection of structures, alterations to roads and construction compounds.
- 12.4.3.2 The noise predictions will be based on information available at the time of writing, including the sound power level of construction plant items, percentage of on-time operation, number of items and any partial screening that could be implemented. In the absence of detailed information, assumptions will be made based on benchmarking and experience from other similar projects.
- 12.4.3.3 Annex E of BS 5228-1 describes the ‘ABC’ method of assessment, which is proposed to establish the threshold of potential significant effects. These thresholds are based on baseline environmental sound measurements and predicted construction noise levels at locations representative of sensitive receptors.
- 12.4.3.4 It is noted that the potential impacts associated with decommissioning activities are likely to be comparable to those for construction activities.
- 12.4.3.5 Having established whether there is a potential significant effect using the ‘ABC’ method, the final assessment of significance is made by considering the following:
- exceedance over the established thresholds of potential significant effect;
 - the levels of noise exposure and character of existing sound environment;
 - the sensitivity of receptors;
 - combined exposure to construction noise and vibration;
 - the duration of the construction impact;
 - effectiveness of mitigation measures that may be provided; and
 - professional judgement.

12.4.4 Construction vibration

- 12.4.4.1 Vibration generated by construction activities will be assessed in line with the methodologies presented in BS5228-2²²⁷, which presents guidance on the assessment of vibration impacts upon human receptors and risk of building damage. Once the levels of vibration due to the proposed construction works have been established, an assessment of significance will be made based on Annex B of BS5228-2. The predicted vibration levels will be used to screen the requirement for further investigation using BS6472-1²³⁰ and BS7385-2²²⁹.
- 12.4.4.2 The identification of likely significant effects will be based upon:
- likelihood of exceedance over the established thresholds of significant effect;
 - the sensitivity of receptors;
 - the duration of the construction vibration impact; and
 - professional judgement.

12.4.5 Construction traffic noise

- 12.4.5.1 Construction traffic noise predictions will be undertaken based on the methodologies set out in CRTN²³² and in DMRB LA 111²²¹. The results of the predictions will be used to undertake a screening exercise to determine whether changes in traffic flow and composition during construction works are likely to give rise to a noise level change of more than 1dB(A); this being the lowest perceptible change in road traffic noise.
- 12.4.5.2 The identification of likely significant effects will be based upon:
- the change in traffic noise levels resulting at assessed receptors;
 - the levels of noise exposure and the character of existing sound environment;
 - the sensitivity of receptors;
 - the duration of the construction traffic impact; and
 - professional judgement.

12.4.6 Operational noise

- 12.4.6.1 Noise emissions from operational sources will be assessed in accordance with the methodology presented in BS 4142²²⁶. Noise predictions at sensitive receptors will be undertaken following the methodology of ISO 9613-2²³¹.
- 12.4.6.2 The operational noise sources which are likely to be included in the model are presented in **Section 12.6.2: Operation**.
- 12.4.6.3 Consultation with relevant stakeholders will be undertaken to agree on the noise limits for operational noise sources. Where appropriate, consideration will be given to guidance in NNR45²³⁸ for risks of low frequency noise disturbance. The identification of a likely significant effects will be based upon:
- likelihood of exceedance over the established thresholds of significant effect;
 - level and character of the existing sound environment;
 - the sensitivity of receptors; and
 - professional judgement.

12.5 Baseline Conditions

12.5.1 Existing baseline

- 12.5.1.1 The land use within the Site is primarily agricultural. The surrounding land use is also arable, farming, woodland and residential. NSR potentially include residential properties, sensitive commercial and community uses (such as educational premises, medical facilities, places of worship), and public open spaces/ recreation facilities, including PRow.
- 12.5.1.2 Noise Important Areas (NIA) are locations in England where Defra strategic noise mapping has identified that the population is exposed to high levels of transportation noise and are therefore more sensitive to any increase in noise. The following road traffic NIA is within 1km of the Proposed Development:
- National Highways ID 7891, A1 Great North Road, Tickencote.
- 12.5.1.3 Further consideration will be given to whether the road traffic NIA will be potentially affected by increases in traffic noise on the wider road network in the ES.
- 12.5.1.4 There are also three rail noise NIA in the construction noise study area (i.e. within 300m of the Grid Cable Route Search Area). However, as these NIA relate directly to the impacts of railway noise associated with the operational East Coast Mainline rail line, and the Proposed Development does not propose to transport materials via the rail network, these are not relevant to this assessment.
- 12.5.1.5 An initial desk-top study indicates that NSR located within the operational study area for the Solar Development Site include:
- residential receptor (Hales Barn) excluded from the centre of the Solar Development Site;
 - recreation/ leisure receptors at Woolfox Golf and Country Club, adjacent;
 - residential receptors at Horn Farm Cottage, approximately 80m west;
 - residential receptor along Pickworth Road, approximately 125m east;
 - residential receptors at Tickencote Warren Farm Cottage, approximately 135m south-west;
 - Taylor's Farm, approximately 160m north;
 - residential receptors in Tickencote, approximately 200m south-west;
 - residential receptors in Pickworth, approximately 200m east;
 - residential receptors in Great Casterton, approximately 245m south-east;
 - residential receptors at 1 and 2 Pickworth Road, approximately 260m north;
 - Home Farm, approximately 380m east;
 - residential receptors at Christians Lodge, approximately 400m east;
 - Mounts Lodge Farm, approximately 420m east;
 - residential receptors at Hardwick Farm and Cottages 425m to the west;
 - residential receptors at Ingthorpe, approximately 500m south;
 - Casterton College Rutland, approximately 510m east; and
 - Cross Roads Farm/ Wilds Lodge School, approximately 745m south of the Solar Development Site.
- 12.5.1.6 There are a number of cultural heritage and ecological receptors that may be considered sensitive to noise located within the study area. These are set out in **Section 8: Cultural**

Heritage (Section 8.5: Baseline Conditions) and Section 9: Ecology and Biodiversity (Section 9.5: Baseline Conditions¹⁶).

- 12.5.1.7 The sound environment around the Solar Development Site is of a rural nature, with ambient sound levels dominated by road traffic from the Great North Road (A1), which bisects and borders the Solar Development Site. Noise levels at receptors adjacent to the A1, for example in Tickencote, are shown to experience road traffic noise levels in the range 55 to 70 dB L_{den}¹⁷ according to the Defra Round 4 strategic noise maps. Other roads in the vicinity of the Solar Development Site produce low levels of noise, with adjacent receptors typically experiencing road traffic noise levels of 40 to 50 dB L_{den}. There is no significant railway noise affecting NSR within the study area around the Solar Development Site.
- 12.5.1.8 There may be other sources of noise from commercial/ industrial sources which are not obvious from the strategic noise maps. As described in **Section 12.4.2**, sound surveys will be undertaken, to gain a fuller picture of the existing baseline sound environment, to inform the ES assessment.
- 12.5.1.9 An initial desk-top study indicates that the NSR located within a 300m study area (relating to construction noise) for the Grid Cable Route Search Area include:
- residential receptors at Ryhall, adjacent to the Middle Grid Cable Route Search Area;
 - residential properties at Essendine, adjacent to the Middle Grid Cable Route Search Area;
 - Casterton College Rutland, located adjacent to the Middle Grid Cable Route Search Area;
 - residential receptors at Pickworth Road, adjacent to the Middle Grid Cable Route Search Area;
 - residential properties at Little Bytham, adjacent to the Northern Grid Cable Route Search Area;
 - residential properties at Tallington, adjacent to the Northern Grid Cable Route Search Area;
 - residential properties at Belmesthorpe, located 10m east of Middle Grid Cable Route Search Area;
 - residential properties at Little Casterton; located 60m north-east of the Middle Grid Cable Route Search Area;
 - residential properties at A1175 (Main Road), located 60m west of the Southern Grid Cable Route Search Area;
 - residential receptors at Swayfield, located 95m north of the Northern Grid Cable Route Search Area;
 - residential properties at Couthorpe, located 105m west of the Northern Grid Cable Route Search Area;
 - residential properties at Careby, located 175m east of the Northern Grid Cable Route Search Area; and
 - residential properties at Creeton, located 290m east of the Northern Grid Cable Route Search Area.

¹⁶ Those sites that are known or considered likely to contain noise sensitive species (i.e., where noise may change breeding habits or threaten species in some other way) will be identified in the ES.

¹⁷ The day-evening-night level (L_{den}) is a noise indicator based on annual average A-weighted long-term sound over 24 hours with a 5 dB(A) penalty for evening noise (7pm to 11pm) and a 10 dB(A) penalty for night time noise (11pm to 7am)

12.5.1.10 The sound environment around the Grid Cable Route Search Area is also of a rural nature, dominated by road traffic noise from the A1 to the west and the East Coast Mainline railway to the east. Rail noise levels at communities such as Little Bytham range from below 40 dB L_{den} to around 65 dB L_{den} according to the Defra Round 4 noise maps.

12.5.2 Future baseline

12.5.2.1 There is potential for future development to affect the future baseline. The future baseline for noise and vibration in some parts of the study area is expected to remain as the current existing baseline in the absence of the Proposed Development proceeding due to its largely rural and agricultural nature.

12.5.2.2 However, the future baseline within the study area has the potential to change as a result of the construction and operation of nearby local developments with significant sources of noise, or which introduce new NSR into the study area. Such developments could include:

- any new industrial developments or new infrastructure or developments that have the potential to change road traffic within the study area; and
- any new NSR where these are allocated within relevant DPD (e.g. for new residential development or for sustainable urban extensions).

12.5.2.3 Please refer to **Appendix C: Initial Long List of Cumulative Effects Assessment** which summarises other potentially relevant developments that will be evaluated to determine whether they can be considered as future baseline, as new potential sources of noise or new NSR, as these are already consented or may be consented and developed in the future (although this is difficult to forecast). **Appendix C** will be reviewed and updated as the ES progresses to include allocations within relevant DPD which may be new NSR that require consideration.

12.6 Potential Impacts and Effects

12.6.1 Construction

12.6.1.1 The construction works are of a temporary nature, so impacts would be temporary and reversible.

12.6.1.2 The potential impacts of the Proposed Development in relation to noise and vibration during construction are likely to include:

- earthworks and site clearance activities such as stripping of topsoil, trenching, storage and capping of soil;
- underground cable installation (cable plough or trenching) and reinstatement works;
- piling and erection of solar PV module support structures;
- excavation and construction of foundations and piling for the substations, if required;
- construction of laydown areas and construction compounds;
- construction of concrete pad foundation for inverters, transformers and BESS;
- HDD (or other trenchless methods) under or in close proximity to watercourses, where utilised; and

- construction vehicles travelling to and from the Proposed Development.

12.6.2 Operation

- 12.6.2.1 The potential impacts of the Proposed Development in relation to noise during operation are likely to result from:
- operational noise from supporting infrastructure including inverters and transformers, BESS and the On-Site Substation(s); and
 - operational noise resulting from maintenance, including replacement of components, as described in **Section 2.6: Operational Activities**.

12.6.3 Decommissioning

- 12.6.3.1 Noise from decommissioning activities is Scoped In. However, as the effects are anticipated to be similar to or less than construction no separate decommissioning assessment will be undertaken, and results will be as reported under construction.

12.7 Design, Mitigation and Enhancement Measures

12.7.1 Embedded Measures

- 12.7.1.1 The Proposed Development is currently evolving through an environmentally led iterative design process (as described in **Section 2: Site Description and the Proposed Development**). At the outset of this design process the Applicant has set out a series of Design Principles (refer to **Section 2.4: Environmental Design**) which they are seeking to achieve, as far as reasonably practicable, in the design of the Proposed Development.
- 12.7.1.2 Embedded measures can comprise modifications to the design of a scheme made during the pre-application phase that seek to avoid or minimise impacts, that are an inherent part of the design and do not require additional action to be taken. Therefore, embedded measures comprise, or are informed by, the Design Principles as well as other mitigation measures.
- 12.7.1.3 Embedded measures for the Proposed Development relevant to noise and vibration are likely to include:
- following ‘best practicable means’ (BPM) (as defined by Section 72 of the Control of Pollution Act 1974) in construction practices (see paragraph 12.7.1.4);
 - restriction of HGV movements to certain routes, days of the week and times of the day;
 - selection of plant with low noise levels at source where practicable; and
 - siting sources of operational noise as far as reasonably practicable from NSR.
- 12.7.1.4 Measures to control noise and vibration as defined in Annex B of BS 5228-1 and Section 8 of BS 5228-2 will be adopted where reasonably practicable. These measures represent BPM to manage noise and vibration emissions from construction activities. An Environmental Clerk of Works will also be required to be appointed to advise and supervise the mitigation measures during construction and decommissioning.
- 12.7.1.5 The measures confirmed as part of the EIA process, will be described in the outline management plans described below, and their implementation secured by a Requirement

of the draft DCO.

12.7.2 Management plans

- 12.7.2.1 A suite of management plans will be in place for the Proposed Development. Outline versions of these management plans will incorporate standard industry best practice, considered as embedded measures, as well as any further mitigation that is deemed required as a result of the EIA process.
- 12.7.2.2 Those relevant to noise and vibration include:
- oCEMP;
 - oCTMP; and
 - oDEMP (which will include a commitment to produce a decommissioning traffic management plan to form part of the DEMP).
- 12.7.2.3 Outline versions of these management plans will be submitted with the Application to secure the commitments contained within. It will be a Requirement of the draft DCO for the Applicant to develop final management plans to be in substantial accordance with the outlines and for them to be submitted to the relevant planning authority for approval in advance of the relevant phase of development.

12.7.3 Further mitigation

- 12.7.3.1 Further mitigation is actions to achieve a reduction in significance of effect and/ or anticipated outcome, if not met by the embedded mitigation. Further mitigation for noise and vibration will be defined, if required, through the EIA process once the level of significance of effects is known. Options for further mitigation for the Proposed Development relevant to noise and vibration may include attenuation, screening and enclosures, as appropriate.

12.8 Likely Significant Effects

12.8.1 Construction

Noise effects from construction traffic

- 12.8.1.1 The indicative construction programme is outlined in **Section 2.5: Construction Programme and Activities**. Construction of the Proposed Development (subject to the necessary consent being granted and an investment decision being made) may commence, at the earliest, in 2029 and last approximately 24 months.
- 12.8.1.2 During construction, adverse noise effects may occur due to construction traffic, such as HGV trips to deliver materials and equipment to and from the Proposed Development. Vehicle trips would be temporary, over the approximate 24-month period, and the nature of the Proposed Development would not require large-scale material removal or delivery. There is no requirement to remove large amounts of demolition material, spoil, or earth from the Site, nor is there a need for large amounts of construction materials such as concrete to be delivered.
- 12.8.1.3 An oCTMP will detail measures specific to travel planning and HGV movements,

including construction traffic routing, to minimise impacts and any likely adverse effects at NSR.

- 12.8.1.4 As described in **Section 2.5: Construction Programme and Activities**, it is anticipated that up to 60 HGV trips per day (120 two-way movements) will be undertaken during the peak construction periods. Dependent on the routes taken, there is the potential for this to give rise to likely significant noise effects and therefore this is Scoped In to further assessment and effects will be reported in the ES.

Noise effects from construction activities

- 12.8.1.5 Potentially significant noise effects during the construction could include noise from preparatory works and the installation of solar PV modules, On-Site Substation(s) and supporting equipment. Although significant effects are anticipated to be unlikely, the proposed location and duration of specific construction activities within the Site is not yet known and will be subject to development during design and assessment. Noise impacts will be considered during this design development, such as the Design Principles described in **Section 12.7: Design, Mitigation and Enhancement Measures**. Likely significant effects are expected to be avoided, however, due to the potential proximity of the NSR, noise from construction activities is Scoped In to further assessment and will be reported in the ES.

Vibration effects from construction traffic

- 12.8.1.6 Vibration from traffic on the public highway is caused by irregularities in the road surface. Where the road surface is free from irregularities (e.g. potholes), significant vibration effects would not be expected, even at relatively short distances (i.e. within a few metres); this is based on accepted guidance in DMRB LA 111²²¹.
- 12.8.1.7 Perceptible vibration due to construction traffic is unlikely, except for any situations where construction traffic passes very close (i.e. within a few metres) of residential properties. Impacts would individually be no greater than those from other vehicles legally able to operate on the public highway.
- 12.8.1.8 The Applicant will maintain all haul roads on-site in a state of good repair and will locate them away from residential properties, as far as reasonably practicable. On this basis, likely significant vibration effects are not expected to arise from the use of haul roads.
- 12.8.1.9 On the basis that traffic routing for the Proposed Development remains subject to ongoing studies, if agreed to be necessary with the relevant highway authorities, vibration from construction traffic is proposed to be Scoped In on a precautionary basis.

Vibration effects from construction activities

- 12.8.1.10 Sources of construction vibration include piling and vibratory compaction and cable installation using HDD. Construction vibration is not expected to cause damage to buildings or structures unless very high levels of vibration are generated. BS 7385-2 provides guidance on values of vibration for avoidance of cosmetic damage to buildings. For continuous vibration sources, peak particle velocity values of 7mm/s are unlikely to result in any damage to buildings. Such levels would only be expected to occur where

vibration generating activities occur very close to structures.

- 12.8.1.11 There is potential for effects on human receptors due to construction vibration at sensitive receptors within the study area. The level of significance would depend on the nature and the duration of activities, the distance between the source of vibration and the sensitive receptor, the sensitivity of the receptor and the standard measures employed to reduce vibration. With the implementation of standard measures secured in the oCEMP, adverse impacts from construction vibration can be minimised. However, as the design development is not yet complete and insufficient information is available to assess the risk of residual significant effects, construction vibration is proposed to be Scoped In.

12.8.2 Operation

Noise effects from operational activities

- 12.8.2.1 During the operational phase, it is possible that noise could be generated by supporting infrastructure that would be installed as part of the Proposed Development on the Solar Development Site.
- 12.8.2.2 The solar PV modules and connecting cables do not emit noise. However, there is the potential for the BESS and the supporting infrastructure, such as inverters, transformers and the On-Site Substation(s) to be located on the Solar Development Site, to generate some noise during operation.
- 12.8.2.3 The propagation of noise from electrical infrastructure associated with the Proposed Development is dependent on the local topography and the number and noise rating of the electrical plant to be installed. Low frequency noise, in particular, may be perceptible and disturbing at some distance from the infrastructure associated with a solar farm.
- 12.8.2.4 As described in **Section 2.4: Environmental Design**, any sources of operational noise (e.g. inverters) will be located as far as reasonably practicable from existing NSR.
- 12.8.2.5 Full details of any noise generating supporting infrastructure would also be included as part of the Proposed Development description within the ES, along with further details as to how the design of the Proposed Development has been developed to minimise any adverse impacts on the residential amenity of surrounding occupiers. It is not anticipated that any noise impacts arising from plant and supporting infrastructure would be at levels deemed likely to give rise to likely significant environmental effects, particularly in consideration of the passive nature of solar PV development.
- 12.8.2.6 However, as the details of electrical infrastructure are not confirmed at this stage and the configuration and layout of the Proposed Development is subject to ongoing technical studies, it is not possible to assess the likely significance of effects at this stage. On this basis, operational noise at the Solar Development Site is Scoped In to the EIA.
- 12.8.2.7 There will be no noise emitted from the Grid Connection Cable within the Grid Cable Route Search Area, therefore this has been **Scoped Out** of the EIA.

Noise from operational traffic

- 12.8.2.8 During the operational phase, it is possible that noise could be generated by road traffic to and from the Proposed Development.
- 12.8.2.9 As described in **Section 2.6: Operational Activities**, it is anticipated that traffic trips to and from the Proposed Development during operation would be minimal involving very low frequency visits by maintenance and security staff, occasional deliveries for replacement of parts/ equipment, and occasional visitors. Given the very low number of trips generated by the Proposed Development significant road traffic noise effects are unlikely.
- 12.8.2.10 Noise from operational road traffic is therefore **Scoped Out** of further assessment in the ES.

Vibration effects from operational activities

- 12.8.2.11 There are no sources of operational vibration proposed as part of the Proposed Development as any plant with moving parts, including cooling equipment and transformers, would be mounted on suitable anti-vibration mounts if required. There will be no major piling or compaction operations expected as part of replacement campaigns. Vibration would therefore not be expected to be perceptible even in very close proximity to plant on the Solar Development Site. There will be no vibrations associated with the Grid Connection Cable in the Grid Cable Route Search Area. Vibration from operational activities is proposed to be **Scoped Out** of the ES.

Vibration effects from operational traffic

- 12.8.2.12 As operational traffic would be minimal (see paragraphs 12.8.2.8 to 12.8.2.10) and for maintenance purposes only, it is considered that vibration from operational traffic is unlikely to result in significant effects. Vibration from operational traffic is proposed to be **Scoped Out** of the ES.

12.8.3 Decommissioning

- 12.8.3.1 The works involved for the decommissioning phase would be similar or of a lower magnitude/ duration than for the construction phase. Noise from decommissioning activities is Scoped In. However, as the effects are anticipated to be similar to or less than construction no separate decommissioning assessment will be undertaken, and results will be as reported under construction.

12.9 Assumptions, Limitations and Uncertainties

- 12.9.1.1 This section has been collated based on a range of publicly available information and commercially available datasets. It is assumed that the data collated are accurate. In the absence of data, a precautionary approach has been taken and professional judgement, based on experience of similar projects, has been used where required to inform the scope of the assessment.
- 12.9.1.2 The data referred to in this section will be supplemented with additional data collected as

part of the EIA process, including a baseline noise survey. Any limitations associated with the baseline noise survey will be reported in the ES that accompanies the Application.

12.10 Summary

12.10.1.1 A summary of those matters proposed to be Scoped In and **Scoped Out** of the assessment are set out below.

Table 12-1: Noise and vibration scoping summary

Aspect	Phase	Scoped In / Out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Noise from road traffic	Construction	Scoped In	N/A
	Operation	Scoped Out	As discussed within Section 12.8: Likely Significant Effects , operational traffic would be limited in number and therefore significant effects are not anticipated.
	Decommissioning	Scoped In	N/A
Vibration from road traffic	Construction	Scoped In – construction traffic Scoped Out – haul roads	N/A As discussed within Section 12.8: Likely Significant Effects , perceptible vibration from use of haul roads is unlikely due to keeping them in a state of good repair and siting them away from residential properties. Therefore, no likely significant effects are anticipated.
	Operation	Scoped Out	As discussed within Section 12.8: Likely Significant Effects , operational traffic is due to be minimal and no likely significant effects are anticipated.
	Decommissioning	Scoped Out	As discussed within Section 12.8: Likely Significant Effects , decommissioning effects are anticipated to be similar or lower in magnitude than during construction. As such no likely significant effects are anticipated.
	Construction	Scoped In	N/A

Aspect	Phase	Scoped In / Out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Noise from Proposed Development activities	Operation – Solar Development Site	Scoped In	N/A
	Operation – Grid Cable Route Search Area	Scoped Out	As described in paragraph 12.8.2.7 no operational noise is expected along the cable for the grid connection in the Grid Cable Route Search Area.
	Decommissioning	Scoped In	N/A
Vibration from Proposed Development activities	Construction	Scoped In	N/A
	Operation	Scoped Out	As discussed within Section 12.8: Likely Significant Effects , there are not anticipated to be any sources of operational vibration from the Proposed Development, and therefore no likely significant effects are anticipated.
	Decommissioning	Scoped In	N/A

13. Socio-Economics

13.1 Introduction

- 13.1.1.1 This section outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in **Section 2: Site Description and the Proposed Development**, in respect of socio-economics.
- 13.1.1.2 This section sets out the relevant legislation, policy, standards and guidance, study area, baseline conditions, and a high-level assessment of the potential impacts in relation to:
- effects on employment, skills and training opportunities;
 - effects on the local economy;
 - effects on local businesses;
 - effects on community and recreational facilities (including but not limited to village halls, places of worship, and recreational facilities);
 - effects on users of PRoW and other promoted recreational routes;
 - effects on tourism attractions and facilities;
 - effects on accommodation availability; and
 - effects on Development Land and Mineral Safeguarding Areas (MSA).
- 13.1.1.3 Environmental impacts in relation to PRoW and promoted recreational routes are addressed in this EIA Scoping Report, and will be assessed and reported in the ES that accompanies the Application in terms of:
- severance to communities in this socio-economics section (and ES chapter);
 - visual impacts of the Proposed Development in **Section 11: Landscape and Visual Amenity** (and ES chapter); and
 - impacts to users on journey times in **Section 14: Transport and Access** (and ES chapter).
- 13.1.1.4 The potential for adverse effects on agricultural employment from transitioning land use from current arable farming to energy production, energy storage, and related electricity infrastructure will be considered within **Section 15: Agricultural land and soils**. The approach in relation to environmental impacts on tenant farmers is also presented in **Section 15: Agriculture and Soils**.
- 13.1.1.5 Any wider effects on the amenity of local residents would be addressed within other assessment chapters of the ES (e.g. noise, visual and traffic and transport effects) and as far as reasonably practicable, mitigated through the proposed management plans outlined in **Section 13.6: Design, Mitigation and Enhancement Measures**.

13.2 Study Area and Data Sources

13.2.1 Desk-top sources used

- 13.2.1.1 The following desk-top sources have been used to inform the existing baseline conditions of the study areas:
- review of aerial imagery and mapping of the Site and surrounding areas²³⁹;
 - Office for National Statistics (ONS) data (including 2021 Census data)²⁴⁰;
 - PRoW data from RCC²⁴¹; and

- Adopted Rutland Local Plan, including the Core Strategy (July 2011) and Site Allocations and Policies (October 2014)³².

13.2.2 Study Area and Data Sources

- 13.2.2.1 The proposed study area for the socio-economics assessment is dependent on the nature and type of receptor, and the nature of the potential effect(s) on the receptor type. This will be expanded upon further in the ES that accompanies the Application, but this EIA Scoping Report has considered the potential for effects within the areas identified in Table 13-1.
- 13.2.2.2 Where there is potential for indirect effects on receptors, a study area of 500m from the Site has been set. This is based on an accepted approach used in previous, similar assessments and is considered adequate to assess potential indirect socio-economic effects. Should refinements be required to slightly extend this study area, this will be considered on a receptor-by-receptor basis.
- 13.2.2.3 At this stage, the socio-economic assessment is focused on the Solar Development Site. Assessment of the Grid Cable Route Search Area will be conducted on a refined area at the ES stage.

Table 13-1: Socio-economic assessment study areas

Receptor type	Study area for direct effects	Study area for indirect effects
Employment, skills and training opportunities (including supply chain)	Authority area of RCC (for the Solar Development Site) and the adjacent authority areas of SKDC and LCC (for the Grid Cable Route Search Area).	
Local economy	Authority area of RCC (for the Solar Development Site) and the adjacent authority areas of SKDC and LCC (for the Grid Cable Route Search Area).	
Local businesses	Receptors located within the Site.	Receptors located within 500m of the Site.
Community and recreational facilities	Receptors located within the Site.	Receptors located within 500m of the Site.
Users of PRoW and other promoted recreational routes	Receptors located within the Site.	PRoW that are located outside of the Solar Development Site but connect to PRoW within.
Tourism attractions and facilities	Receptors located within the Site.	Receptors located within 500m of the Site.
Accommodation facilities	Authority area of RCC and the adjacent areas of SKDC and LCC.	
Development Land and MSA	Receptors located within the Site.	Receptors located within 500m of the Site.

13.3 Legislation, Planning Policy Context and Guidance

- 13.3.1.1 There is no legislation specific to the methodology of the assessment of socio-economic effects arising as part of the Proposed Development. Where relevant, legislation specific to elements of the assessment such as the Countryside and Rights of Way Act 2000²⁴² will be referenced.
- 13.3.1.2 Policies at a national level relevant to the Proposed Development in regard to socio-

economics are outlined below. Local planning policies relevant to this topic will be identified in the ES that accompanies the Application.

- The Overarching NPS for Energy (EN-1) (2024);
- The NPS for Renewable Energy Infrastructure (EN-3) (2024);
- The NPS for Electricity Networks Infrastructure (EN-5) (2024);
- The Draft Overarching NPS for Energy (Draft EN-1) (2025);
- The Draft NPS for Renewable Energy Infrastructure (Draft EN-3) (2025);
- The Draft NPS for Electricity Networks Infrastructure (Draft EN-5) (2025);
- Environment Improvement Plan (EIP) 2023; and
- The National Planning Policy Framework (NPPF) (2024).

13.3.1.3 Standards and guidance relevant to the Proposed Development in regard to socio-economics are outlined below.

- Planning Practice Guidance (2019);
- Homes and Communities Agency (HCA) Additionality Guide²⁴³; and
- Green Book: Central Government Guidance on Appraisal and Evaluation, HM Treasury, 2022²⁴⁴.

13.3.2 Planning Inspectorate Technical Advice Page for Scoping Solar Development

13.3.2.1 The Planning Inspectorate provides non-statutory guidance and advice on the scope of NSIP solar developments. There are no elements specific to the socio-economic assessment.

13.4 Baseline Conditions

13.4.1 Existing baseline

13.4.1.1 The potential impacts arising from the Proposed Development are assessed relative to the baseline conditions and benchmarked against regional and national standards where appropriate. The key indicators and measures of the areas will be established for:

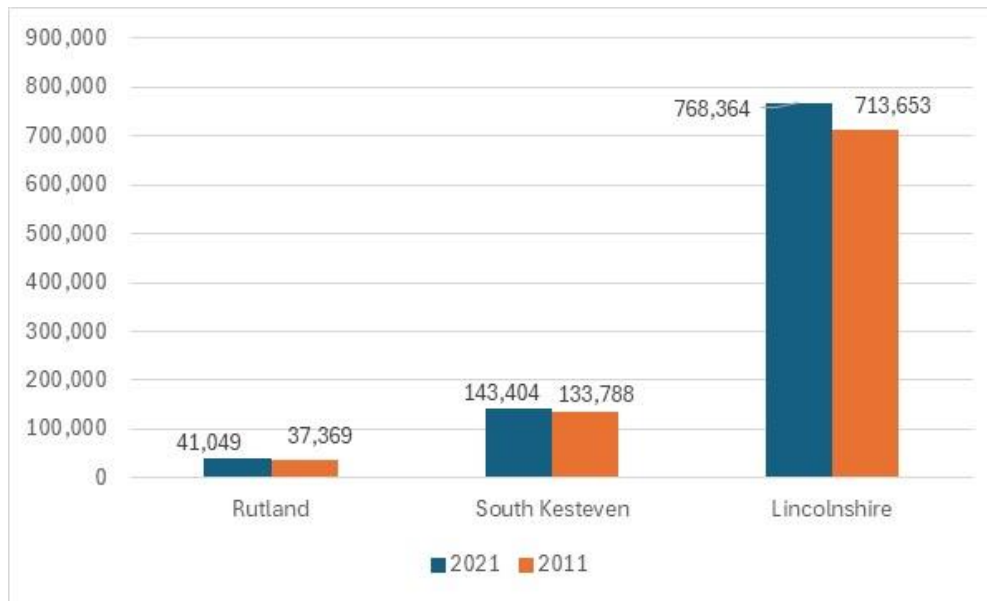
- population/ local economy;
- accommodation availability;
- tourism attractions and facilities;
- an overview of the local economies; and
- the local labour markets.

13.4.2 Population and the local economy

13.4.2.1 Plate 1 presents the population of Rutland, in which the Solar Development Site is wholly located, alongside South Kesteven and Lincolnshire as adjacent authority areas, in which the Grid Cable Route Search Area is located (in part).

13.4.2.2 The population of Rutland was approximately 41,000 in 2021²⁴⁵. This was an increase of 9.8% compared to 2011. South Kesteven and Lincolnshire both experience slightly less growth over the same period of 7.2% and 7.7% respectively.

Plate 1: Population Growth 2011-2021



13.4.3 Employment, Skills and Training Opportunities (including supply chain)

- 13.4.3.1 Using the ONS Annual Population Survey²⁴⁶ to explore economic activity, employment and unemployment of those aged between 16 and 64, Rutland has generally higher rates of economic activity when compared to South Kesteven and Lincolnshire, with levels more aligned to the wider East Midlands Region. Unemployment rates within Rutland are broadly aligned to Lincolnshire and lower than South Kesteven and the wider East Midlands region, as shown in Table 13-2.

Table 13-2: Employment and Unemployment (Jan 2024-Dec 2024)

Geography	Economically Active (%)	Unemployed (%)
Rutland	79%	3.8%
South Kesteven	70.6%	4.8%
Lincolnshire	74.3%	3.5%
East Midlands	79.1%	4.2%

- 13.4.3.2 The main industry of employment across the areas can be seen in Table 13-3.

- 13.4.3.3 Within Rutland the main industries include wholesale and retail trades, public administration and defence, education and human health and social work activities. This profile is broadly similar when compared to South Kesteven and Lincolnshire with some slight variations including a higher proportion of those employed in professional, scientific and technical activities within Rutland.

Table 13-3: Industry of Employment

Employee Jobs by industry	Rutland	South Kesteven	Lincolnshire
A: Agriculture, Forestry and fishing	2.3	2.0	3.4
B: Mining and quarrying	0.1	0.2	0.2
C: Manufacturing	8.6	9.8	10.2

Employee Jobs by industry	Rutland	South Kesteven	Lincolnshire
D: Electricity, gas, steam and air conditioning supply	0.4	0.5	0.6
E: Water supply; Sewerage, Waste management and Remediation activities	0.8	1.0	1.1
F: Construction	7.5	9.3	8.8
G: Wholesale and retail trade; repair of motor vehicles and motorcycles	13.9	16.7	17.1
H: Transport and storage	2.9	4.2	4.6
I: Accommodation and food service activities	4.7	4.4	5.0
J: Information and communication	3.6	3.6	2.4
K: Financial and insurance activities	2.4	3.1	1.5
L: Real estate activities	1.5	1.3	1.2
M: Professional, scientific and technical activities	7.1	5.5	4.1
N: Administrative and support service activities	4.6	4.8	5.3
O: Public administration and defence; compulsory social security¹⁸	11.9	6.0	7.1
P: Education	13.1	10.3	9.2
Q: Human health and social work activities	10.3	12.9	14.2
R, S, T, U Other	4.6	4.5	4.1
R, S, T, U Other	4.6	4.5	4.1

13.4.3.4 Construction activities would provide the main supply chain for the development of solar. Employment within this industry is lower in Rutland when compared to South Kesteven and Lincolnshire with proportions ranging between 7.5% and 9.3% across the study area.

13.4.4 Local businesses, Community and recreational facilities

13.4.4.1 The Proposed Development is predominantly set within agricultural land, which due to its existing use, is not in itself a key recreational attraction or destination. The land does, however, play a role in providing a landscape context to recreational use, walking and cycling routes.

13.4.4.2 There are no community facilities or local businesses within the Solar Development Site. At this stage of the Proposed Development, there are a number of businesses within the Grid Cable Route Search Area, however this area will be refined as the project progresses with businesses avoided as part of route selection. Table 13-4 below sets out an initial list of the local community facilities and businesses within 500m of the Solar Development Site. These have been identified using Google Maps.

¹⁸ An ONS category of Employee Jobs by industry

Table 13-4: Local businesses, community and recreational facilities within 500m of the Solar Development Site

Community facilities and local businesses	Location
Woolfox Golf and Country Club	Adjacent to the Solar Development Site.
Exton Park (a Grade II listed registered park and garden)	Adjacent to Solar Development Site.
Woolfox Depot which includes industrial facilities for: - Alltech UK Production and Distribution; - UFAC (UK) - agricultural services; and - Zeeco Europe Ltd – energy equipment and solutions.	Adjacent to the Solar Development Site.
Bloody Oaks Service Station - Londis and ESSO Petrol Station	Approximately 50m south-east of the Solar Development Site.
OK Diner Tickencote	Approximately 50m south-east of the Solar Development Site.
Balance. Stamford – Yoga studio, Stamford	Approximately 150m east of the Solar Development Site.
Stamford Veterinary Centre	Approximately 340m east of the Solar Development Site.
Stamford Osteopathy Clinic	Approximately 400m east of the Solar Development Site.
Great Casterton Church of England Primary School	Approximately 430m south-east of the Solar Development Site.
Fort Henry (a wedding venue)	Approximately 500m west of the Solar Development Site.
Greetham Valley Golf Course	Approximately 500m north of the Solar Development Site.
Casterton College Rutland	Approximately 510m east of the Solar Development Site (and adjacent to the Southern Grid Cable Route Search Area).

13.4.4.3 There are a number of farm businesses located within the Solar Development Site, with the majority of principal land owners having signed voluntary agreements with the Applicant in relation to the Proposed Development.

13.4.4.4 In addition to the above, community services including healthcare facilities are focussed on the settlement of Stamford which houses a number of GP practices as well as the Stamford and Rutland Hospital.

13.4.5 Tourism attractions, facilities and accommodation

13.4.5.1 In 2023, Rutland had 1.51 million visitors which had an impact of £170.14 million and supported 1,669 jobs (full-time equivalent (FTE))²⁴⁷. Rutland Water provides the largest attraction in the area and is located approximately 3.5km south-west of the Solar Development Site.

13.4.5.2 South Kesteven received 3.15 million visitors during 2022, with a total of 2,754 FTE roles supported by the sector.

13.4.5.3 In 2023, Greater Lincolnshire had 32 million visitors with an economic impact of £2.9 billion. Direct tourism employment supported 23,327 jobs (FTE)²⁴⁸.

13.4.5.4 Rutland contains a range of tourist accommodation including hotels, guest houses/ B&Bs, glamping and camping sites and self-catering accommodation options. No recent bedspace data has been found in the preparation of this EIA Scoping Report however, discussions in relation to availability of this data would be undertaken as part of the environmental assessment.

13.4.6 Users of Public rights of way and other promoted recreational routes

13.4.6.1 The Site is mainly used for agricultural purposes. PRow and promoted recreational routes are illustrated on **Figure 2.1b Environmental Constraints – Solar Development** and **Figure 2.2b Environmental Constraints –Solar Development Site and Grid Cable Route Search Area** and are outlined below.

13.4.6.2 Several PRow cross the Solar Development Site (note bridleways may be utilised by equestrians). These include:

- a bridleway (RL|230|E120/4) located in the north-west of the Solar Development Site, south-west of and linking to the A1;
- a bridleway (RL|150|E164/1) located in the south-west of the Solar Development Site south-west of and linking to the A1;
- bridleways (RL|228|E136/1 and RL|232|E136/3) the route of which run approximately north-south in the east of the Solar Development Site, south of Pickworth;
- bridleway (RL|232|E163/4; RL|232|E135/1, and RL|232|E163/3) the routes of which run approximately west-east in the north of the Solar Development Site west of Pickworth; and
- The Rutland Round long distance walking route crosses the Solar Development Site and connects to wider recreational routes across the study area such as Macmillan Way (near Rutland Water), Hereward Way, Jurassic Way (near Stamford) and Viking Way (near Greetham to the west).

13.4.6.3 The Grid Cable Route Search Area also intersect a number of PRow along their routes. These include:

- bridleway RL|228|E136/1 which crosses the Middle Grid Cable Route Search Area, running west-east;
- footpaths RL|228|E166/1, RL|228|E166/2, which cross the Middle Grid Cable Route Search Area, running north-south;
- footpaths RL|180|E167/2 and RL|206|E167/3 which cross the Middle Grid Cable Route Search Area, running in a north-west to south-east direction;
- footpaths RL|206|E168/1 and RL|206|E168/2 which cross the Middle Grid Cable Route Search Area, running in a north-west to south-east direction;
- footpath RL|206|E172/2 which crosses the Middle Grid Cable Route Search Area, running north-south;
- footpaths RL|180|E176/1, RL|206|E176/2, RL|180|E176/3 and RL|180|E176/4 which cross the Middle Grid Cable Route Search Area, running approximately north-south;
- footpath RL|206|E231/1 which crosses the Middle Grid Cable Route Search Area, running approximately north-south;
- footpath RL|206|E174/1 which crosses the Middle Grid Cable Route Search Area, running approximately north-south;
- footpath LL|Uffi|5/1 which crosses the Middle Grid Cable Route Search Area, running west-east;

- footpath LL|Uffi|6/1 which crosses the Middle Grid Cable Route Search Area, running north-east to south-west;
- footpath LL|Uffi|7/1 which crosses the Southern Grid Cable Route Search Area, running approximately north-south;
- footpath PE|Bainton|4 which crosses the Southern Grid Cable Route Search Area, running approximately south-west to north-east;
- footpath LL|Tall|1001/1 which crosses the Southern Grid Cable Route Search Area, running approximately west-east;
- byway RL|232|E123/1/1, which cross the Northern Grid Cable Route Search Area, running approximately west-east;
- restricted byway LL|Care|3/1 which cross the Northern Grid Cable Route Search Area, running approximately north-west to south-east;
- restricted byway LL|Care|1/1 and footpath LL|LByt|3/1 which cross the Northern Grid Cable Route Search Area, running approximately south-west to north-east;
- footpath LL|Coun|3/1 which crosses the Northern Grid Cable Route Search Area, running approximately south-west to north-east;
- footpath LL|Cast|5/1 and restricted byways LL|Cast|8/3 and LL|Cast|8/2, which cross the Northern Grid Cable Route Search Area, running approximately south-west to north-east; and
- footpath LL|Sway|10/1 which crosses the Northern Grid Cable Route Search Area, running approximately south-west to north-east.

13.4.6.4 In addition, the Macmillan Way long distance path (Boston to Abbotsbury) crosses the Middle and Southern Grid Cable Route Search Area.

13.4.6.5 The usage of these PRoW is not known at this stage, and would be provided where possible. However, it is important to note that the baseline of the assessment assumes that all PRoW are used, and therefore the number of users will not inform the sensitivity of each receptor or the magnitude of change, as outlined in Table 13-3. All data would be provided, where available, for contextual purposes only.

13.4.7 Development Land - Site Allocations and MSA

13.4.7.1 According to the adopted Rutland Site Allocations and Policies DPD, there are no site allocations within the Site. However, an employment allocation known as Woolfox Depot is contained in the emerging (advanced stage) Local Plan for Rutland which was submitted to the SoS for examination in January 2025. This emerging allocation adjoins the Solar Development Site along the A1. In addition, the Solar Development Site borders a designation known as ‘Woolfox Opportunity Area’ to the north-west of the Solar Development Site which is also identified in the emerging Local Plan. Whilst this site is not ‘allocated’, it is identified by RCC as a future opportunity area that may contribute to future housing and economic development needs and is therefore a relevant consideration. There are also a number of smaller residential allocations located within the settlement boundaries in proximity of the Proposed Development. Relevant allocations within the adopted and emerging Local Plans are discussed further in **Section 3: Legislation, Policy Context and Alternatives**, and set out in **Appendix C: Initial Long List for Cumulative Effects Assessment** according to the search criteria in **Section 17: Cumulative and In-combination effects** (Table 17-2).

13.4.7.2 The Solar Development Site interacts with a MSA as identified on Figure 5 of RCC’s Minerals Core Strategy and Development Control Policies DPD³¹. The safeguarding

area covers the majority of the eastern area of Rutland and are safeguarded for limestone and clay resources. A MSA is not a proposed area of extraction and does not mean that proposals will be permitted in the area; the main purpose of a MSA is to protect a mineral resource from sterilisation from surface development such as housing, industrial, or retail uses. Control over built development within MSA in Rutland is dealt with by their MCS Policy 10 – Minerals Safeguarding and will be assessed within the Planning Statement.

- 13.4.7.3 The Grid Cable Route Search Area extends into Lincolnshire, and some of the land interacts with MSA in this authority area which is specifically for limestone, sand and gravel. The Core Strategy and Development Management Policies document states that any application for non-minerals development in a MSA must be accompanied by a Minerals Assessment.
- 13.4.7.4 There are no employment site allocations within the SKDC Local Plan within the Grid Cable Route Search Area.

13.4.8 Future baseline

- 13.4.8.1 Due to the relatively short time period between the socio-economic assessment that accompanies the Application (submission currently anticipated October 2026) and anticipated construction start (from 2029 and lasting approximately 24 months), there is unlikely to be a notable change in the baseline conditions. Other developments will be identified through the cumulative assessment, as set out in **Section 17: Cumulative and In-Combination Effects**.
- 13.4.8.2 The population of Rutland is projected to increase by 14% to 46,510 people between 2021 and 2043²⁴⁹. This change in population is not anticipated to alter the potential likely significant effects identified within this EIA Scoping Report in relation to socio-economic receptors. Similar growth is predicted for South Kesteven²⁵⁰ (growing to up to 155,800 people by 2043).
- 13.4.8.3 It is expected that PRow and promoted recreational routes in the study area will continue to be used. Local businesses and community facilities in the study area may open and close. There is expected to be a gradual increase in residential properties in line with an increasing population size, policy allocations and Government policy.²⁵¹
- 13.4.8.4 There are a number of emerging site allocations and tourist attractions which would be considered as part of the future baseline if the status of these is known at the time of assessment.

13.5 Potential Impacts and Effects

13.5.1 Construction

- 13.5.1.1 The Proposed Development has the potential to generate a range of socio-economic impacts, many of which would be temporary and focused on the construction phase. As noted in **Section 2: Site Description and the Proposed Development**, during construction it is currently estimated that there will be a peak of approximately 350 personnel per day employed with an average of 150-200 workers. The timescales currently anticipated for construction are outlined in **Section 2.5: Construction**

Programme and Activities of this EIA Scoping Report.

13.5.1.2 The following impacts may arise during construction:

- impact on employment, skills and training opportunities – in relation to training and supply chain opportunities;
- potential temporary impacts on business, community and recreational and tourism receptors in relation to temporary access restrictions;
- potential temporary closures or diversions of PRow or other promoted recreational routes;
- potential temporary impacts on accommodation availability; and
- potential temporary impacts on Development Land allocations and MSA.

13.5.2 Operation and Maintenance

13.5.2.1 As outlined in **Section 2: Site Description and the Proposed Development**, maintenance will be required infrequently/ intermittently during the lifetime of the Proposed Development, either due to the service life of components or potential faults.

13.5.2.2 Beyond this, the need to replace panels and BESS during the lifespan of the Proposed Development will generate potential operational effects for a period within the 60 year life of the Proposed Development. Many of the impacts generated by the replacement of components will be similar to those outlined during the construction phase, lasting for the period of replacement activities. The potential effects of planned replacement will therefore be considered as part of the ES.

13.5.2.3 Operational phase impacts may include the following:

- infrequent maintenance visits to the Proposed Development during operation (as outlined in **Section 2: Site Description and the Proposed Development**);
- short-term/ temporary effects of planned replacement activities with an anticipated need to replace the solar panels and BESS during the lifetime of the Proposed Development;
- impacts to local economy stemming from changes in land use from intensive arable uses to potential low intensity agricultural uses alongside use as a solar farm; and
- employment and skills - operation may provide some employment opportunity to the local and wider regional market.

13.5.3 Decommissioning

13.5.3.1 It is anticipated that the potential impacts of the decommissioning of the Proposed Development would be similar to those identified for construction in relation to job creation and supply chain opportunities (staff and local contractors). This phase of the Proposed Development could alter/ revert/ repeat any temporary or permanent closures/ diversions of PRow/ promoted recreational routes which may be necessary during the construction (and during operation, maintenance) of the Proposed Development, and may therefore bring beneficial impacts.

13.6 Design, Mitigation and Enhancement Measures

13.6.1 Embedded measures

- 13.6.1.1 The Proposed Development is currently evolving through an environmentally led iterative design process (as described in **Section 2: Site Description and the Proposed Development**). At the outset of this design process the Applicant has set out a series of Design Principles (refer to **Section 2.4: Environmental Design**) which they are seeking to achieve, as far as reasonably practicable, in the design of the Proposed Development.
- 13.6.1.2 Embedded measures can comprise modifications to the design of a scheme made during the pre-application phase that seek to avoid or minimise impacts, that are an inherent part of the design and do not require additional action to be taken. Therefore, embedded measures comprise, or are informed by, the Design Principles as well as other mitigation measures.
- 13.6.1.3 Specific mitigation measures for socio-economic receptors will be defined through the EIA process and reported in the ES once any likely adverse significant effects have been assessed. Embedded measures for the Proposed Development relevant to socio-economics are likely to include:
- an appropriate buffer will be maintained between properties and construction areas;
 - impact to users of PRoW will be managed through the outline PRoW Management Plan (oPRoWMP) that will accompany the Application;
 - a community liaison officer would be in post during construction in order to provide a single point of contact for the local community;
 - worker movements to and from the Proposed Development would be managed through a CTMP to ensure potential effects are minimised where possible (e.g. shared transport); and
 - existing access to businesses, community facilities/ assets to be maintained at all times or a suitable equivalent provided.

13.6.2 Management plans

- 13.6.2.1 A suite of management plans will be developed for the Proposed Development. Outline versions of these management plans will be submitted with the Application to secure the commitments to management and enhancement measures contained within. Those considered relevant to the socio-economic assessment include:
- oCEMP;
 - Outline Construction Skills, Employment and Supply Chain Plan (oCSEaSCP);
 - oCTMP;
 - oPRoWMP;
 - oLEMP; and
 - oDEMP.
- 13.6.2.2 Appropriate Requirements will be included in the draft DCO to secure development of these outline versions of management plans to full versions – which will accord with the outline versions submitted with the Application - that would be submitted to the relevant planning authority for approval.

13.7 Likely Significant Effects

- 13.7.1.1 The assessment will consider the construction, operation, and decommissioning of the Proposed Development. The likely significant effects identified below take into account the design, mitigation and enhancement measures described above. A summary of likely significant effects of the Proposed Development over the phases of the Proposed Development is provided below.

13.7.2 Construction

Employment, skills and training opportunities (including supply chain)

- 13.7.2.1 In relation to employment and skills and supply chain receptors, construction of the Proposed Development has the potential to generate beneficial effects. It is therefore proposed that potential direct and indirect effects in relation to employment and supply chain are Scoped In as part of the assessment.

Local businesses

- 13.7.2.2 At this stage it is not anticipated that any local businesses would be directly affected by the Proposed Development with such effects avoided through initial design. In relation to potential for indirect effects, in considering the local baseline and embedded mitigation commitments, it is not considered likely that the Proposed Development would lead to likely significant effects on local businesses and therefore it is proposed that direct and indirect construction effects on local businesses is **Scoped Out** of the assessment.

Community and recreational facilities

- 13.7.2.3 At this stage it is not anticipated that any recreation and community facilities would be directly affected by the Proposed Development given distance from the Site. In considering the baseline environment, outlined in Table 13-4 and embedded mitigation i.e. existing access to recreation and community facilities/ assets to be maintained at all times or a suitable equivalent provided, it is considered that the Proposed Development will not have significant indirect effects on access to community and recreational facilities and there is no potential for likely significant effects to occur. The embedded mitigation outlined will take the form of appropriate controls through Management Plans (such as the oPRoWMP and oCEMP) which the Applicant is committed to, and which will accompany the Application. In relation to local services, including healthcare facilities, whilst it is recognised that the Proposed Development may lead to construction workers staying locally for a period of time, it is not considered that this would be of a volume to negatively affect or alter these facilities (e.g. patient numbers). It is therefore proposed that direct and indirect construction effects on community and recreational facilities is **Scoped Out** of the assessment.

Users of public rights of way and other promoted recreational routes

- 13.7.2.4 The Proposed Development has the potential to give rise to likely significant effects on PRoW and promoted recreational routes, both negatively (e.g. disruption during construction and changing the character of the PRoW) and positively (e.g. proposed new or extended routes). Although no permanent closures are anticipated, there will likely be

a need to temporarily close or divert existing PRoW during the construction phase. However, it is also the intention of the Applicant to enhance the existing PRoW network by, where practicable to do so, creating circular routes and new permissive paths. These measures will ultimately be secured via the oPRoWMP, which will form part of the DCO Application. It is therefore proposed that direct and indirect effects on the PRoW network and other promoted recreational routes are Scoped In as part of the assessment and opportunities will be explored to consider increased access and/ or reinstatement of historical routes where appropriate.

Tourism attractions, facilities and accommodation

- 13.7.2.5 There are no tourist sites located within the study area which are likely to be adversely affected by the Proposed Development. The likely workforce requirements for the construction phase of the Proposed Development outlined in paragraph 13.5.1.1 that could require accommodation locally (i.e. workforce from outside of the local area) are not considered to be of a level that would significantly impact on tourism and temporary accommodation bedspace availability (i.e. likely to be in the hundreds for a short period of time/ at peak). It is therefore proposed that direct and indirect effects on tourism facilities is **Scoped Out** of the assessment.

Development Land – Site Allocations and MSA

- 13.7.2.6 The initial baseline identifies a limestone and clay resource MSA within the Solar Development Site and some of the land within the Grid Cable Route Search Area, which extends into Lincolnshire, interacts with an MSA for limestone and sand and gravel. However, mineral deposits within the safeguarding areas will not be permanently sterilised by the Proposed Development due to it being a temporary form of development that will be decommissioned. No current proposals for mineral extraction within the Site are known and this will be confirmed with the Local Authority as part of the ES. It is therefore proposed that potential effects on MSA is **Scoped Out** of the assessment. A Minerals Assessment will accompany the Application.
- 13.7.2.7 The baseline has not identified any planning allocations within the Site itself, but has identified adjoining or nearby residential and employment allocations. One of the largest is known as Woolfox Depot which is contained in the emerging (albeit advanced stage) Local Plan for Rutland. In addition, the Solar Development Site borders a designation known as ‘Woolfox Opportunity Area’ to the north-west which, whilst not an ‘allocation’ is acknowledged by RCC in their emerging Local Plan as a future opportunity area that may contribute to future housing and economic development needs. Although adjoining or within nearby settlements, it is not considered that the Proposed Development would restrict or prevent the delivery of the current or proposed allocations identified and it is therefore proposed that the assessment of potential effects on development land is **Scoped Out** of the assessment.

13.7.3 Operation

- 13.7.3.1 Many of the potential impacts on socio-economic receptors would be first experienced during the construction phase and are therefore proposed to be **Scoped Out** of further assessment during the operation phase, although the ES will acknowledge the temporal duration of the effect into operation, where this is appropriate.

Employment, skills and training opportunities (including supply chain)

- 13.7.3.2 The operational phase has the potential to generate a limited amount of additional employment opportunities, as well as some local supply chain requirements; however, both the direct and indirect effects are not expected to be likely to give rise to significant effects and therefore are proposed to be **Scoped Out** of further assessment.

Local businesses, Community and recreational facilities, Development land – Site Allocations and MSA

- 13.7.3.3 Given the nature of the Proposed Development and the temporary effects which will be felt during the construction stage only, it is anticipated that the operation of the Proposed Development will have no impact on access to local businesses and community and recreational facilities and there is no potential for likely significant effects to occur. It is therefore proposed that direct and indirect effects on access to community facilities is **Scoped Out** of the assessment.

Users of public rights of way and other promoted recreational routes

- 13.7.3.4 It is considered that potential effects on access to PRow and recreational resources as a consequence of any PRow diversions would be experienced during the construction phase only and as such, are not proposed to be assessed during the operation phase although the ES will acknowledge the temporal duration of the effect into operation, where this is appropriate. As identified in paragraph 13.7.2.4, no permanent diversions are anticipated, but will be assessed in the construction phase, if a permanent diversion is considered appropriate. The direct and indirect access impacts on users of PRow are therefore **Scoped Out** of the assessment during operation.
- 13.7.3.5 The operational Proposed Development may alter the character of the PRow which could impact the users of the PRow, and it is proposed that this will be assessed. The Proposed Development offers opportunities for enhancement of the PRow network, such as the provision of permissive paths, and the potential effects of such measures would be considered. It is therefore proposed that potential indirect effects on the amenity changes to the PRow network are Scoped In as part of the assessment during operation.

Tourism attractions, facilities and accommodation

- 13.7.3.6 It is not considered that there would be any impact to tourism attractions, facilities and accommodation during the operational stage of the Proposed Development, given the minimal workforce required during the operational phase as set out in **Section 2: Site Description and the Proposed Development**. There is also no empirical evidence that the Applicant is aware of which suggests that the presence of a solar farm has led to a reduction in visitors and tourists to local areas. As such, it is proposed that direct and indirect effects on these receptors are **Scoped Out** of the operational stage assessment.

13.7.4 Decommissioning

- 13.7.4.1 It is anticipated that the potential effects of the decommissioning phase of the Proposed Development would be similar to, or less than those identified for construction in relation to employment and supply chain opportunities, as well as access to local

business and community receptors. The phase could also alter any changes made to PRow during the construction and operation phases. Decommissioning impacts and effects are therefore Scoped In.

13.7.4.2 As with the construction phase, it is proposed that the scope of the decommissioning stage assessment would include:

- potential direct and indirect effects in relation to employment (including supply chain);
- potential direct and indirect effects on local businesses, community and recreational facilities; and
- direct and indirect effects on the PRow network and other promoted recreational routes.

13.7.4.3 Table 13-8 summarises the potential construction, operation and decommissioning impacts relevant to the socio-economics assessment

13.8 Assessment Methodology

13.8.1.1 An assessment of potential effects would be undertaken to consider the potential impact of the Proposed Development against the established baseline environment.

13.8.1.2 The significance of an effect is a function of the value or ‘sensitivity’ of the receptor and the ‘magnitude’ or ‘scale’ of the change or impact. Given the lack of published guidance or significance criteria for the assessment of socio-economic effects, the assessment would use a bespoke methodology and significance criteria which have been successfully applied on a number of other similar projects and subject to examination. The proposed approach would include an assessment of the likely scale, permanence and likely significance of effects on the socio-economic receptors.

13.8.1.3 Appropriate quantitative and qualitative significance criteria are defined below, based on professional judgement and accepted industry best practice. These criteria would be used to undertake the assessment of socio-economic effects.

13.8.2 Employment, skills and training opportunity (including supply chain), Local businesses

13.8.2.1 It is proposed that the assessment of employment/ economic effects is informed by data provided by the Applicant and based on staffing requirements of similar UK based projects. Assumptions would be made in relation to the proportion of the workforce who may be sourced from the immediate study area and the HCA Additionality Guide would be used to calculate leakage and displacement effects (that is, retention of jobs and expenditure in the region), providing a net direct employment estimate for the Proposed Development.

13.8.2.2 Indirect and induced effects would also be considered using ready reckoner figures from the HCA Additionality Guide.

13.8.3 Users of Public Rights of Way and Community and recreational facilities

13.8.3.1 The assessment of effects on users of PRow and recreational routes will focus on the impact of disruption to existing routes and the resulting changes in journey lengths and

times and local travel patterns.

13.8.4 Assessment Criteria

- 13.8.4.1 It is proposed that the following criteria are used in the assessment of socio-economic effects to determine sensitivity, magnitude of impact and overall significance of effect. Moderate and major effects are to be considered as significant in EIA terms.

Table 13-5: Sensitivity or value of receptors

Sensitivity	Definition of sensitivity
High	Businesses, individuals, groups of individuals, or other receptors possessing very significant economic, social and/or community value. These receptors are considered very likely to incur a significant loss or gain as a result of potential changes in the environment, with little to no potential for substitution. For example: residential properties, a regional or national trail, directly affected business premises or community facilities.
Medium	Businesses, individuals, groups of individuals, or other receptors possessing some significant economic, social and/or community value. These receptors are considered likely to incur some loss or gain as a result of potential changes in the environment, with limited potential for substitution. For example: a footpath or bridleway or land associated with a residential or business receptor.
Low	Businesses, individuals, groups of individuals, or other receptors possessing some economic, social and/or community value. These receptors are not considered likely to incur a loss or gain as a result of potential changes in the environment, with potential for substitution. For example, a permissive trail.
Negligible	No change to business, individuals, groups of individuals or other receptors. PRoW is of negligible importance and/or with alternative routes easily available.

Table 13-6: Magnitude of impact criteria

Sensitivity	Definition of sensitivity
High	An adverse or beneficial effect that would be likely to result in total loss of an individual receptor or permanent changes to baseline situation for a large number of businesses, individuals or groups of individuals. Substantial increase/ decrease in journey length and/ or travel patterns and increased/ decreased opportunities for users to access the wider network and/ or community infrastructure.
Medium	An adverse or beneficial effect that would be very likely to result in partial changes to baseline situation for a moderate number of businesses, individuals or groups of individuals. Noticeable increase/ decrease in journey length and/ or travel patterns and increased/ decreased opportunities for users to access the wider network and/ or community infrastructure.
Low	An adverse or beneficial effect that would be likely to result in minor changes to baseline situation for a small number of businesses, individuals or groups of individuals. Slight increase/ decrease in journey length and/ or travel patterns and increased/ decreased opportunities for users to access the wider network and/ or community infrastructure.
Negligible	An adverse or beneficial effect that would be likely to result in little or no change to baseline situation for businesses, individuals or groups of individuals. A negligible increase, no change, or a decrease in journey length and/ or travel patterns and no increase or decrease in opportunities for users to access the wider network and/ or community infrastructure.

Table 13-7: Classification of effects

Magnitude of impact		Sensitivity of receptor			
		High	Medium	Low	Negligible
	High	Major	Major	Moderate	Minor
	Medium	Major	Moderate	Minor	Negligible
	Low	Moderate	Minor	Negligible	Negligible
	Negligible	Minor	Negligible	Negligible	Negligible

13.8.4.2 The evaluation of significance is a product of the likelihood and consequence of each impact as set out in Table 13-7. Significant effects are generally defined as those that are of Moderate or Major significance. Significance conclusions for each effect will incorporate confirmed design and mitigation measures.

13.9 Assumptions, Limitations and Uncertainties

13.9.1.1 The socio-economic assessment would rely largely on secondary data which is published by various third party providers. The assessment is therefore based on data and a baseline situation at a point in time.

13.10 Summary

13.10.1.1 A summary of those matters proposed to be Scoped In and **Scoped Out** of the assessment are set out in Table 13-8 below.

Table 13-8: Socio-economic aspects scoped in or scoped out of the EIA

Receptor	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Employment, skills and training opportunities (including supply chain)	Construction	Scoped In	Construction activity is expected to support local employment and positive supply chain impacts in the study area which could generate likely significant beneficial effects.
	Operation	Scoped In	As discussed above within Section 13.5: Potential Impact and Effects and 13.7: Likely Significant Effects , while some employment opportunities are expected for the operational phase, these are expected to be limited and are unlikely to give rise to significant effects. However, there is potential for adverse effects agricultural employment from transitioning land use from current arable farming to energy production, energy storage, and related electricity infrastructure.
	Decommissioning	Scoped In	Decommissioning activity is expected to support local employment in the study area.
Land Use – potential indirect effects on local businesses, community and recreational facilities.	All	Scoped Out	As discussed in Section 13.5: Potential Impacts and Effects and 13.7: Likely Significant Effects , effects on local businesses, community and recreational facilities are expected to not be significant given the management plans that the Applicant is committed to described in Section 13.6: Design, Mitigation and Enhancement Measures .

Receptor	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Land Use – Development land – Site Allocations and MSA	All	Scoped Out	As set out in Section 13.7: Likely Significant Effects , no direct effects are anticipated on development allocations and the Proposed Development would not sterilise mineral resources, with no known / current extraction licenses within the Site. A Minerals Assessment will accompany the Application.
Users of PRoW and other promoted recreational routes	Construction	Scoped In	Potential for likely significant effects on access to PRoW and recreational routes due to PRoW diversions and changing the character of the PRoW during construction and potential new or extended routes.
	Operation	Scoped Out Scoped In	Potential effects on access to PRoW and recreational routes would be experienced and assessed for the construction phase. It is proposed that these are Scoped Out for the operation phase although the ES will acknowledge any temporal duration of effects that continue into the operational phase, where this is appropriate. Potential indirect effects on the amenity changes to the PRoW network are Scoped In as part of the assessment during operation.
	Decommissioning	Scoped In	Potential for direct and indirect effects on the PRoW network and other promoted recreational routes to occur.
Effects on tourism attractions/ facilities	All	Scoped Out	As discussed in Section 13.5: Potential Impact and Effects and 13.7: Likely Significant Effects , given the lack of tourist sites in the vicinity, the Proposed Development is not expected to result in significant effects on tourism.
Effects on accommodation	All	Scoped Out	It is not considered that there would be any impact to tourism accommodation during the construction, operation or decommissioning stages of the Proposed Development, linked to the relatively small numbers of workforce required at peak that would need to stay locally.
All other socio-economic effects related to the local population (amenity effects)	All	Scoped Out	As discussed in Section 13.5: Potential Impacts and Effects and 13.7: Likely Significant Effects , effects on amenity would be assessed in other technical chapters.

14. Transport and Access

14.1 Introduction

- 14.1.1.1 This section outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in **Section 2: Site Description and the Proposed Development**, in respect of transport and access.
- 14.1.1.2 This section sets out the relevant legislation, policy, standards and guidance, study area, baseline conditions, and a high-level assessment of potential impacts of transport and access.
- 14.1.1.3 This section is supported by **Figure 14.1: Baseline Transport Network**.

14.2 Study Area and Data Sources

14.2.1 Study area

- 14.2.1.1 The Solar Development Site and Grid Cable Route Search Areas are shown on **Figure 1.4: Parts of the Site Referred to in the EIA Scoping Report**.
- 14.2.1.2 The extent of the study area for the assessment of transport impacts has not been defined in detail at this stage. However, it is likely to include areas of the transport network that are beyond the Solar Development Site and Grid Cable Route Search Area, and the extent of the study area will be discussed with National Highways, RCC and LCC as highway authorities.
- 14.2.1.3 To inform this EIA Scoping Report the baseline transport network in the vicinity of the Solar Development Site and Grid Cable Route Search Areas has been used, as shown on **Figure 14.1: Baseline Transport Network**. This highlights the key highways, public transport routes, and pedestrian and cycle network, including PRow, that are in and around the Site and which may be impacted by the Proposed Development depending on the evolving design. These road links, junctions, bus routes, rail lines, walking and cycle routes are identified in **Section 14.5: Baseline Conditions**.
- 14.2.1.4 The study area will be reviewed and, as appropriate, refined for the assessment in the ES.

14.2.2 Desk-top sources used

- 14.2.2.1 The following online sources have been used to inform the existing baseline conditions:
- Road and rail network - Google Maps²⁵²;
 - Bus routes – RCC²⁵³ and LincsBus²⁵⁴; and
 - Designated non-motorised routes - Sustrans²⁵⁵/Long Distance Walkers Association²⁵⁶.

14.3 Planning Policy Context and Guidance

- 14.3.1.1 Legislation, planning policy context and guidance relevant to transport and access is

summarised below.

- 14.3.1.2 Legislation specifically relevant to the assessment of traffic and access in relation to the Proposed Development is limited to the Road Vehicles (Authorisation of Special Types) General Order 2003²⁵⁷.
- 14.3.1.3 Policies relevant to the Proposed Development in regard to transport and access are outlined below. Local planning policies relevant to this topic will be identified in the ES that accompanies the Application:
- Overarching NPS for Energy (EN-1) (2024);
 - Draft Overarching NPS for Energy (EN-1) (2025);
 - NPS for Renewable Energy Infrastructure (EN-3) (2024);
 - Draft NPS for Renewable Energy Infrastructure (EN-3) (2025);
 - NPS for Electricity Networks Infrastructure (EN-5) (2024);
 - Draft NPS for Electricity Networks Infrastructure (EN-5) (2025); and
 - National Planning Policy Framework (NPPF).
- 14.3.1.4 Standards and guidance relevant to the Proposed Development in regard to transport and access is outlined below:
- IEMA Guidelines for the Environmental Assessment of Traffic and Movement (2023)²⁵⁸;
 - The Design Manual for Roads and Bridges, National Highways²⁵⁹;
 - DLUHC Guidance: Transport Evidence Bases in Plan Making and Decision Taking (2015)²⁶⁰;
 - DLUHC Guidance: Travel Plans, Transport Assessments and Statements (2014)²⁶¹; and
 - DfT Guidance: Strategic road network and the delivery of sustainable development (updated 2022).

14.3.2 Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table

- 14.3.2.1 The Planning Inspectorate provides non-statutory guidance on the scoping of NSIP solar projects. For traffic and transport it proposes information should be supplied on the following:
- Anticipated vehicle movements, type and duration. This information is provided in **Section 14.6: Potential Impacts and Effects**.
 - Anticipated vehicle routing and access. This information is discussed further in the **Section 14.6: Potential Impacts and Effects**.
 - Whether alternative transport will be used, for example canal, railway. Alternative transport methods may be considered, if appropriate.
 - Characterisation of the local road network and existing traffic movements, for example quiet rural roads or busy strategic network, existing congestion issues, any weight or height restrictions. Further information on this is provided in **Section 14.4: Assessment Methodology**.
 - Likelihood of exceedance of relevant thresholds set out in the appropriate guidance on the need to undertake an assessment of effects (for example IEMA guidance). IEMA guidance has been followed and a conclusion on effects is identified in **Section 14.8: Likely Significant Effects**.

- 14.3.2.2 Evidence relied upon in scoping out aspects of the assessment are provided within **Section 14.7: Design, Mitigation and Enhancement Measures** and **Section 14.8: Likely Significant Effects. Scoped Out** aspects and associated assumptions are listed in one location within **Section 14.10: Summary**.

14.4 Assessment Methodology

- 14.4.1.1 The assessment will follow the IEMA, 2023 Assessment Guidelines.
- 14.4.1.2 A separate Transport Assessment (TA) will be prepared in relation to the Proposed Development which will set out the overarching transport strategy and consider impacts on the operation of local and strategic transport networks, including any key junctions identified through scoping discussions with National Highways and RCC and LCC as the relevant local highway authorities during the AM and PM peak hours. The ES chapter will assess the impact of the Proposed Development on transport receptors.

14.4.2 Sensitivity of the Receptors

- 14.4.2.1 The potential receptors are those people making journeys on networks within the relevant study area by all modes of transport.
- 14.4.2.2 Vulnerable road users are non-motorised users (NMU) who are identified as being susceptible to changes in traffic conditions.
- 14.4.2.3 The sensitivity of receptors within the study area will be defined with regard to Table 14-1 which lists example sensitive locations where receptors (people) may travel to/from. Table 14-2 outlines receptors which could be relevant for each potential effect identified.

Table 14-1: Example Sensitive Locations

Example sensitive receptors	Sensitivity
Schools, colleges, playgrounds, accident black spots, retirement homes, urban/residential roads without footways that are used by pedestrians.	High
Congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, un-segregated cycleways, community centres, parks and recreation facilities.	Medium
Sites of tourist/visitor attraction, places of worship, residential areas set back from the highway with screening.	Low
Public open spaces, nature conservation areas and residential areas with adequate footway provision.	Negligible

Table 14-2: Example Effects and Receptors

Effect	Receptor
Traffic severance	Non-motorised users
Driver and public transport delay	Vehicle drivers/ passengers, Public Transport users
Pedestrian delay	Pedestrian users
Non-motorised user amenity on highways or associated footways	Non-motorised users
Fear and intimidation	Non-motorised users
Highway safety	Vehicle drivers/ passengers, Public Transport users, Non-motorised users

Effect	Receptor
Road Safety Audits	Vehicle drivers/ passengers, Public Transport users, Non-motorised users
Hazardous loads	Vehicle drivers/ passengers, Public Transport users, Non-motorised users

14.4.3 Magnitude of impacts

14.4.3.1 For each effect to be assessed, criteria for assessing Magnitude of Impact are defined in this section. Broadly, the Magnitude of Impact will be defined as follows:

Table 14-3: Impact Magnitude Criteria

Impact	Description
High	Changes which are likely to be perceptible and which would substantially change conditions which would otherwise prevail to the extent that it would significantly affect travel behaviour (such as a substantial increase in traffic making it difficult for pedestrians to cross a road). Generally, an absolute change of >90% change in traffic is considered to be a high magnitude.
Medium	Changes which are likely to be perceptible and which would materially change conditions which would otherwise prevail to the extent that it may affect travel behaviour to some degree (such as a change in road network congestion which may lead to some rerouting or retiming of journeys). Generally, a 60% - 90% change in traffic is considered to be a medium magnitude.
Low	Changes which are likely to be perceptible but not to the extent that it would materially change conditions which would otherwise prevail (such as the introduction of a new site access junction). Generally, a 30% - 60% change in traffic is considered to be a low magnitude.
Negligible	Changes which are unlikely to be perceptible (such as a low change in traffic or short diversion) Generally, a rule of <30% change in traffic is considered to be a negligible magnitude.

14.4.3.2 The Significance of Effect is determined through the combination of Sensitivity of Receptor and Magnitude of Impact. Generally, a significant effect in EIA terms is one which is moderate beneficial/ adverse or above. An effect which is neutral or slight beneficial/adverse is generally considered to be ‘not significant’ in EIA terms; however, professional judgment can be employed with appropriate justification to be provided in the ES.

Table 14-4: Classification of effects (significance)

Magnitude	Sensitivity of Receptor			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Negligible	Negligible	Negligible

14.5 Baseline Conditions

14.5.1.1 The extent of the study area for the assessment of transport impacts has not been defined in detail at this stage. To inform this EIA Scoping Report, the baseline transport network in the vicinity of the Solar Development Site and Grid Cable Route Search Areas is shown on **Figure 14.1: Baseline Transport Network** and described below.

14.5.2 Existing Baseline - Road Network

Solar Development Site

- 14.5.2.1 The Solar Development Site consists of a large area of agricultural land located to the east and west of the A1. The A1, Great North Road, forms part of the SRN managed by National Highways and connects Grantham and Stamford with the north and south of England. The A1 is a dual carriageway with a speed limit of 70mph. There are three junctions on the A1 in the vicinity of the Solar Development Site, including a southbound off-slip at Woolfox, a grade separated junction with Grantham Lane, which in combination with the southbound off-slip provides for all movements, and a southbound off-slip and northbound on-slip to the B1081 at Great Casterton.
- 14.5.2.2 There are a number of 'B' roads and/ or unclassified roads which run through, alongside or in the vicinity of the Solar Development Site. These include:
- Pickworth Lane/ The Plains which runs to the south of Woolfox golf course and via Woolfox Lane links the A1 to the village of Pickworth. This is a single lane road with a verge and field accesses.
 - B1081 which joins the A1 at Empingham Lane and runs through Great Casterton to Stamford. Through Great Casterton the speed limit is 30mph with chicanes to manage traffic. To the north of the settlement there is a 50mph speed limit; to the south it is 40mph through Toll Bar. There is a weight restriction in Stamford for through traffic although the extents are not clear.
 - Pickworth Road/ Casterton Lane, which is an unmarked road linking Great Casterton to Pickworth. The road has a weight restriction except for access and the speed limit increases from 20mph in the built-up area of Great Casterton to 60mph north of the village.
 - Grantham Lane which is a two-lane single carriageway with a 60mph speed limit that connects the A1 to Empingham.

The Grid Cable Route Search Area

- 14.5.2.3 The Grid Cable Route Search Area intersects a number of A roads and minor roads²⁶². Key roads are outlined below:

Northern Grid Cable Route Search Area

- The Northern Grid Cable Route Search Area is not crossed by any A or B roads. The nearest B road is the B1176 which is a two-lane single carriageway that runs to the east of the Northern Grid Cable Route Search Area, and for the most part is separated by a railway line. There are nevertheless several locations where the B1176 crosses the railway line (under or over bridge) providing access into the Northern Grid Cable Route Search Area, albeit road geometries are generally constrained. The B1176 connects with the A6121 to the south and the A151 to the north.
- There are various unclassified roads that cross the Northern Grid Cable Route Search Area, and two unclassified routes connecting the search area to the A1. These are:
 - Stretton Road/Castle Bytham Road/Clipsham Road which connects to the A1 via an all-movement grade separated junction at Stretton. Clipsham Road is partly marked as a two-lane single carriageway. It has a variable speed limit, several tight bends and a weight restriction except for access.

- Morkery Lane which connects to the A1 via an all-movement grade separated junction at South Witham. Mockery Lane is generally marked as a two-lane single carriageway with a variable speed limit, passing through Castle Bytham where road widths are more constrained and intersecting with Clipsham Road.

Middle Grid Cable Route Search Area

- The Middle Grid Cable Route Search Area is crossed by the A6121 which connects via Stamford to an all-movement grade separated junction on the A1. The A6121 is a two-lane single carriageway which intersects with the B1176 at Ryhall. There are also several unclassified roads that cross the Middle Grid Cable Route Search Area including Pickworth Road, Ryhall Road and Main Street.

Southern Grid Cable Route Search Area

- The Southern Grid Cable Route Search Area is crossed by the A6121 and A1175. The A1175 is a two-lane single carriageway, which generally runs east/west and connects to the A6121, and south of Stamford, the A1 via a southbound off-slip and northbound on-slip. The B1176 also crosses the Southern Grid Cable Route Search Area along with various unclassified roads including Pickworth Road, Ryhall Road, Toilethorpe, Little Casterton Road, Newstead Lane, Essendine, Greatford Road and Tallington Road.

14.5.3 Existing Baseline - Cyclists

Solar Development Site

- 14.5.3.1 There are no National Cycle Network (NCN) routes or on or off-road dedicated/ marked cycling facilities within the immediate vicinity of the Solar Development Site. However, some of the quieter unclassified roads around the Solar Development Site may be attractive to leisure cycling.

The Grid Cable Route Search Area

- 14.5.3.2 There are no NCN routes within the Grid Cable Route Search Area. Minor roads within the Grid Cable Route Search Area may be attractive to leisure cycling.

14.5.4 Existing Baseline - Public transport

- 14.5.4.1 There are several bus routes that serve the local communities surrounding the Solar Development Site. The closest bus stops to the Solar Development Site are in Tickencote on Empingham Road to the west of the A1 and Great Casterton opposite the Plough. The stops are served by Stamford and Oakham services (9, 184, 185).
- 14.5.4.2 The closest train station is approximately 4.5km south-east of the Solar Development Site within Stamford. This is served by trains to Stanstead Airport, Birmingham New Street and Cambridge.

14.5.5 Future Baseline

- 14.5.5.1 The future baseline would take account of other developments and transport schemes,

along with background growth. It is proposed that the future baseline would be based on the peak construction year.

- 14.5.5.2 Traffic will be projected to the future baseline year by applying TEMPro growth factors. This will be balanced against any other significant developments which could alter baseline traffic flows. Data from other developments, identified through a review of publicly available planning data and discussions with RCC and LCC, would be incorporated into the future baseline scenario where appropriate. Professional judgement will be used to avoid double counting (balancing TEMPro growth against other known developments) when developing the future baseline.
- 14.5.5.3 The indicative construction programme is outlined in **Section 2.5: Construction Programme and Activities**. Construction of the Proposed Development (subject to the necessary consent being granted and an investment decision being made) may commence, at the earliest, in 2029 and last approximately 24 months. Under this scenario, construction traffic for the Proposed Development is unlikely to be generated at the same time as other major development projects within the immediate area including Mallard Pass Solar Farm, for which timescales for construction are reported to take place from summer 2026 for an anticipated 24 months.

14.6 Potential Impacts and Effects

- 14.6.1.1 The nature of the Proposed Development is such that the greatest impact is likely to occur during the construction phases and this will be the focus of the assessment of transport effects presented in the ES.

14.6.2 Vehicle Generation

Construction

- 14.6.2.1 As noted in **Section 2: Site Description and the Proposed Development**, during construction, it is currently estimated that there will be a peak of approximately 350 personnel per day employed with an average of around 150-200 workers. Whilst some employees originating from larger settlements nearby (e.g. Stamford) may travel by public transport or cycle, these modes are not expected to constitute a significant proportion of trips to the Site.
- 14.6.2.2 The construction works are of a temporary nature, however, during this temporary period the traffic generated by the Proposed Development could have the following effects:
- severance of communities (change in traffic flows);
 - road vehicle driver and passenger delay;
 - NMU delay;
 - NMU amenity (change in traffic flows on routes used by pedestrians and cyclists);
 - fear and intimidation; and
 - road user and pedestrian safety.
- 14.6.2.3 The Proposed Development is expected to require AIL to be delivered.
- 14.6.2.4 Consideration will also be given to those users of local facilities which could be

impacted by the Proposed Development.

Operation

- 14.6.2.5 The operation of the Proposed Development is likely to involve a small number of staff for routine maintenance and security, occasional deliveries for replacement of parts/ equipment, and occasional visitors. It is currently anticipated that minimal visits to Site per week may occur with four-wheel drive vehicles or medium/ large sized vans at peak periods. Therefore, the anticipated number of vehicles associated with routine operations is low.
- 14.6.2.6 In addition to routine maintenance operations, periodic replacement of solar infrastructure and BESS will be required. Assumptions regarding the replacement will be confirmed in the ES, but traffic associated with these periodic events would be controlled through appropriate management plans and would not be expected to result in high traffic flows on the local or SRN.
- 14.6.2.7 On this basis, it is envisaged that the impacts and effects of traffic generation during the operational phase will be immaterial.

Decommissioning

- 14.6.2.8 The Proposed Development will be consented to operate for 60 years. The anticipated number of vehicles associated with the decommissioning phase would not exceed that set out for the construction phase, and impacts will be short-term and temporary. Therefore, it is envisaged that the effects of the decommissioning phase will be the same or less than the construction phase and so will be presented accordingly in the ES.

14.6.3 Vehicle Access

Solar Development Site

- 14.6.3.1 As described in **Section 2.2: Description of the Proposed Development**, site access optioneering is ongoing. It is currently anticipated that a minimum of three points of vehicular access for the Solar Development Site will be required during the construction and decommissioning of the Proposed Development. Internal haul routes within the Solar Development Site will be used, as far as reasonably practicable for movements to reduce disruption and transport effects. At this preliminary stage, it is anticipated that there will be a number of points of access required during the operational stage, including dedicated emergency accesses into the Solar Development Site.
- 14.6.3.2 Further detail on proposed access to the Site will be included within the ES including the TA following engagement with relevant stakeholders including National Highways, LCC and RCC. **Figure 14-1: Baseline Transport Network** identifies the baseline transport network.

The Grid Cable Route Search Area

- 14.6.3.3 As described in **Section 2.3: Electricity Export Connection to National Grid**, the electricity generated by the Proposed Development is expected to be exported via

interface cables to the National Grid. The cabling will be installed underground. Further feasibility studies and options appraisals are to be undertaken to determine the preferred routing and installation method for the cable. Access to the Grid Connection Cables will be temporary during the construction period and will utilise existing access points where practicable. The impacts and effects in relation to routing of, and access to, the Grid Connection Cables will be assessed in the ES following further environmental and technical studies.

14.7 Design, Mitigation and Enhancement Measures

- 14.7.1.1 The Proposed Development is currently evolving through an environmentally led iterative design process (as described in **Section 2: Site Description and the Proposed Development**). At the outset of this design process the Applicant has set out a series of Design Principles (refer to **Section 2.4: Environmental Design**) which they are seeking to achieve, as far as reasonably practicable, in the design of the Proposed Development.
- 14.7.1.2 Measures embedded into the Proposed Development design during the pre-application phase can help to avoid or minimise impacts and reduce the need for additional action to be taken. Therefore, embedded measures may comprise, or be informed by, the Design Principles as well as other mitigation measures.
- 14.7.1.3 Embedded measures for the Proposed Development relevant to transport and access are likely to include, where such measures are required to mitigate potentially significant effects:
- exploring construction HGV route options with an aspiration to avoid sensitive receptors where feasible;
 - upgrading of routes where considered necessary to cater for HGV;
 - positioning of suitably qualified banksmen at the Site access points, to allow all vehicle arrivals and departures to be safely controlled during the construction period;
 - providing road signs and/ or markings to increase awareness of the Site access points during construction phase and ensuring visibility for drivers is unobstructed in the vicinity of the Site access points;
 - encouraging local construction staff to car share, to reduce single occupancy car trips, by promoting the benefits of car sharing such as reduced fuel costs and by providing dedicated parking spaces for those car sharing nearer to the compound(s);
 - a shuttlebus/ shared vehicle service for the transfer of non-local staff, to reduce vehicle trips on the surrounding highway network will be explored; and
 - implementing a Delivery Management System to control the bookings of HGV deliveries from the start of the construction period i.e. to regulate the arrival times of HGV via timed delivery slots, as well as to monitor compliance of HGV routing.

14.7.2 Management Plans

- 14.7.2.1 A suite of management plans will be in place for the Proposed Development. Outline versions of these management plans will incorporate standard industry best practice, considered as embedded measures, as well as any further mitigation that is deemed required as a result of the EIA process. These will be submitted with the Application to secure the commitments contained within.

- 14.7.2.2 Those relevant to transport and access include:
- oCTMP;
 - oCEMP;
 - oOEMP (which will include commitments to traffic management measures for maintenance and replacement activities); and
 - oDEMP (which will include a commitment to produce a decommissioning traffic management plan to form part of the DEMP).
- 14.7.2.3 Production of a final CTMP to be in substantial accordance with the oCTMP is expected to be secured by Requirement of the draft DCO and prepared by the Contractor for agreement with LCC, RCC and National Highways prior to commencing construction on-site. Similarly, final versions of other management plans in accordance with framework plans are expected to be secured by Requirement.

14.8 Likely Significant Effects

14.8.1 Construction

- 14.8.1.1 The 2023 IEMA guidance sets criteria for determining a study area in paragraph 2.16. This will be used to develop the study area for the ES:
- “Rule 1: Include highway links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%)*
- Rule 2: Include highway links of high sensitivity where traffic flows have increased by 10% or more.”*

Severance

- 14.8.1.2 As set out in paragraph 3.16 of the IEMA, 2023 guidance, changes in traffic flow of 30%, 60% and 90% are regarded as producing ‘slight’, ‘moderate’ and ‘substantial’ changes in severance, respectively. The Proposed Development has potential to generate increased traffic flows during construction, and therefore this is Scoped In for further assessment in the ES at this stage.

Delay

- 14.8.1.3 The IEMA, 2023 guidance makes reference to potential delays to drivers and to pedestrians. Users of other modes can also experience delays, such as cyclists and those travelling by bus. Para 3.20 of the 2023 IEMA traffic guidance states that:
- “delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system.”*
- 14.8.1.4 The Proposed Development could result in changes which could significantly affect perceptions of driver delay during construction because of increased vehicle travel demand on the local network. This will be reviewed once traffic flow forecasts and further assessment is undertaken. As a further consideration, where any temporary road closure or traffic management is likely to be in place, any additional potential delay caused by the diversion routes will be reported. Driver delay is therefore Scoped In for the assessment of the Proposed Development during construction and will be reported in the ES.

Non-Motorised User Delay

- 14.8.1.5 Drawing upon the IEMA, 2023 guidance, the assessment of pedestrian delay serves as a proxy for the delay that other modes of NMU may experience when crossing roads. Any potential for delays will be assessed qualitatively based on the nature of the Proposed Development and construction proposals using assessor judgement.
- 14.8.1.6 The Proposed Development may result in changes which could significantly affect perceptions of pedestrian and other NMU delay during construction because of increased vehicle travel demand on the local road network. This is therefore Scoped In for the assessment of the Proposed Development during construction, however this will be reviewed once traffic flow forecasts are finalised and reported in the ES.

Non-Motorised User Amenity

- 14.8.1.7 IEMA 2023 guidelines recommend pedestrian and cyclist amenity should be assessed where there is a significant increase in HGV flows on roads used by pedestrians and cyclists. There are no NCN routes and limited footway provision is available alongside many of the roads which may be used for construction vehicles in the vicinity of the Proposed Development.
- 14.8.1.8 Construction HGV routing would be designed to use the SRN, A and B roads and avoid the rural routes and villages as far as reasonably practicable. However, traffic flow increases relating to the construction of the Proposed Development on specific road links have not yet been determined, therefore this is Scoped In for further assessment at this stage and will be reported in the ES.
- 14.8.1.9 It is acknowledged that pedestrian amenity on the PRoW network in the area may be affected, however this would be considered further in the socio-economic chapter of the ES. Where PRoW are affected, mitigation proposals including potential diversions ,will be considered.

Fear and Intimidation

- 14.8.1.10 Thresholds have been set by the IEMA Guidelines that seek to categorise fear and intimidation depending on existing road conditions and likely additional flow of traffic resultant from the development. Traffic flow increases relating to the construction of the Proposed Development on specific road links have not yet been determined, therefore this is Scoped In for further assessment at this stage and will be reported in the ES.

Road User Safety

- 14.8.1.11 The key issue in assessing accidents and safety is in understanding the potential for change. There can be some small changes in prevailing road safety conditions arising simply as a result of having a greater number of journeys being made on a network; very simply, the more people that are travelling, the more people that are liable to become involved in an accident. By far the more important issue to consider is how travel and the design of the transport networks interrelate to affect prevailing road safety.
- 14.8.1.12 The Proposed Development has the potential to result in changes which could affect accidents and safety during the construction phase. Accidents and safety is therefore

Scoped In for further assessment and will be considered in the ES.

- 14.8.1.13 A Road Safety Audit would be carried out for any proposed changes to the adopted highway where appropriate prior to submission. This will be considered in the TA as appropriate and reported as an Appendix of the ES.

Hazardous Loads

- 14.8.1.14 The Proposed Development is not expected to generate or attract hazardous loads at any stage. It is anticipated that AIL would be required to enable construction of the Proposed Development and the TA would confirm the number and suggested routing of these movements. Therefore, hazardous loads are **Scoped Out** of the ES. The routing of AIL would be controlled via the final CTMP, secured via Requirement of the draft DCO.

14.8.2 Operation

- 14.8.2.1 Operational traffic is expected to be minimal, with a small number of operational staff and occasional routine maintenance visits. The majority of these trips will be by cars or vans. Therefore, it is expected that any operational impacts on traffic and transport from this will be minimal.
- 14.8.2.2 As described in **Section 2.6: Operational Activities**, replacement of some components will be required during the lifetime of the Proposed Development, either due to their service life or potential faults. The effects of maintenance and replacement activities would be controlled and managed through appropriate management plans and by the requirements of the draft DCO. Therefore it is proposed that operational traffic is **Scoped Out** of the ES.

14.8.3 Decommissioning

- 14.8.3.1 Decommissioning of the Proposed Development could give rise to similar (or lower) levels of forecast trip generation as the construction phase; therefore, the construction assessment provides a worst-case scenario for potential effects.
- 14.8.3.2 Management and mitigation measures will be incorporated into the oDEMP, which will set out the general principles to be followed in the decommissioning of the Proposed Development, including in respect of traffic management measures.
- 14.8.3.3 The final DEMP, secured via Requirement, will set out how vehicle access to and from the Proposed Development will be managed, and it is expected that the principles agreed to minimise disruption during construction will be reviewed and applied during decommissioning.
- 14.8.3.4 Effects during decommissioning are not expected to be significant and are therefore **Scoped Out** of further assessment.

14.9 Assumptions, Limitations and Uncertainties

- 14.9.1.1 The extent of the study area for the assessment of transport impacts has not been defined in detail at this stage as it will depend on the evolution of the design, and detailed

discussions with the relevant highway authorities.

- 14.9.1.2 The scope of the EIA for transport and access is subject to change and refinement once more data becomes available and scoping discussions commence with relevant stakeholders.
- 14.9.1.3 The scope and nature of the assessment and the extent of survey collection will be proportionate to the scale of the transport effects anticipated to arise from the Proposed Development.
- 14.9.1.4 All future traffic flow forecasts include a degree of uncertainty. The assessors will take appropriate account of the reasonably conceivable uncertainty when assessing potential likely significant effects, in discussion with LCC, RCC and National Highways.

14.10 Summary

- 14.10.1.1 Table 14-5 summarises the potential construction, operation and decommissioning impacts relevant to the traffic and transport assessment.

Table 14-5: Traffic and Transport elements scoped in or scoped out of EIA

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Severance	Construction	Scoped In	N/A
	Operation	Scoped Out	Sections 14.8.2: Operation and 14.8.3: Decommissioning provide context to scoping out operation and decommissioning.
	Decommissioning	Scoped Out	
Delay	Construction	Scoped In	N/A
	Operation	Scoped Out	Sections 14.8.2: Operation and 14.8.3: Decommissioning provide context to scoping out operation and decommissioning.
	Decommissioning	Scoped Out	
Non-motorised user amenity	Construction	Scoped In	N/A
	Operation	Scoped Out	Sections 14.8.2: Operation and 14.8.3: Decommissioning provide context to scoping out operation and decommissioning.
	Decommissioning	Scoped Out	
Fear and Intimidation	Construction	Scoped In	N/A
	Operation	Scoped Out	Sections 14.8.2: Operation and 14.8.3: Decommissioning provide context to scoping out operation and decommissioning.
	Decommissioning	Scoped Out	
Road user safety	Construction	Scoped In	N/A
	Operation	Scoped Out	Sections 14.8.2: Operation and 14.8.3: Decommissioning provide context to scoping out operation and decommissioning.
	Decommissioning	Scoped Out	
Hazardous loads	Construction	Scoped Out	Section 14.8.1.14 provides rationale for scoping out hazardous loads.
	Operation	Scoped Out	Sections 14.8.2: Operation and 14.8.3: Decommissioning provide context to scoping out operation and decommissioning.
	Decommissioning	Scoped Out	

15. Agriculture and Soils

15.1 Introduction

- 15.1.1.1 This section sets out the approach to the assessment of the likely significant effects arising from the Proposed Development, as described in **Section 2: Site Description and the Proposed Development**, in respect of agricultural land and soils.
- 15.1.1.2 This section sets out the relevant legislation, policy, standards and guidance, study area, baseline conditions, and a high-level assessment of potential impacts on agriculture and soils.
- 15.1.1.3 This section is supported by **Figure 15.1: Provisional Agricultural Land Classification**.

15.2 Study Area and Data Sources

15.2.1 Study area

- 15.2.1.1 The study area is the Site, as set out in **Figure 1.1: Site Location Plan**. It covers all land required for the assets and infrastructure which constitute the Proposed Development during its construction, operation and decommissioning phases. The total area of the Solar Development Site is approximately 949.5 hectares (ha) and is shown in **Figure 1.1: Site Location Plan**. The total area of the Grid Cable Route Search Area is approximately 2977ha and is shown in **Figure 1.2: Site Plan - Aerial**. A final cable routing is not yet determined and will be refined as the design progresses. It is anticipated that this refinement will be completed for the Application submission.

15.2.2 Desk-top sources used

- 15.2.2.1 Natural England's Provisional ALC Mapping⁷¹ has been used to provide an overview of the existing baseline conditions regarding the grading of agricultural land within the study area. This will be verified by soil survey.

15.3 Planning Policy Context and Guidance

15.3.1 Legislation

- 15.3.1.1 Legislation relevant to the Proposed Development in regard to agricultural land and soils is outlined below:
 - The Planning Act (2008); and
 - Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

15.3.2 National policy:

- 15.3.2.1 Policies at a national level relevant to the Proposed Development in regard to the agriculture and soils assessment are outlined below:
 - Overarching National Policy Statement for Energy (EN-1);

- Draft NPS for Energy (Draft EN-1) (2025);
- National Policy Statement for Renewable Energy Infrastructure (EN-3);
- Draft NPS for Renewable Energy Infrastructure (Draft EN-3) (2025);
- National Policy Statement for Electricity Networks Infrastructure (EN-5);
- Draft NPS for Electricity Networks (Draft EN-5) (2025);
- Written Ministerial Statement Solar projects must fit in with food security, 15 May 2024;
- National Planning Policy Framework (2024); and
- Environment Environmental Improvement Plan (EIP) 2023²⁶³.

15.3.2.2 Local planning policies relevant to this topic will be identified in the ES that accompanies the Application.

15.3.2.3 Standards and guidance relevant to the Proposed Development in regard to agricultural land and soils are outlined below:

- Planning Practice Guidance, 2024;
- Agricultural Land Classification of England and Wales - Revised guidelines and criteria for the grading of the quality of agricultural land 1988²⁶⁴;
- Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, 2009²⁶⁵;
- Agricultural Land Classification: Protecting the best and most versatile land, 2012, Technical Information Note 049²⁶⁶;
- Guide to assessing development proposals on agricultural land, 2021²⁶⁷;
- A New Perspective of Land and Soil in Environmental Assessment, 2022, Institute of Environmental Assessment and Management²⁶⁸;
- Benefitting from Soil Management in Development and Construction, 2022²⁶⁹; and
- Building on soil sustainability: Principles for soils in planning and construction, 2022²⁷⁰.

15.3.3 Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table

15.3.3.1 The Planning Inspectorate provides non-statutory guidance on the scope of NSIP solar projects.

15.3.3.2 The guidance recommends that information is included to identify agricultural and soils receptors and the anticipated impacts. This is discussed further within ‘Baseline Conditions’ and ‘Potential Impacts’ sub-sections of this section. Provisional ALC grading is illustrated on **Figure 15.1: Provisional Agricultural Land Classification**.

15.3.3.3 The guidance recommends that evidence and assumptions relied upon in scoping out aspects of the assessment are provided within the EIA Scoping Report. Therefore, the evidence relied upon in scoping out aspects of the assessment are provided within **Sections 15.6: Potential Impacts and Effects and 15.8: Likely Significant Effects**. In addition, evidence for scoping out any aspects of the assessment are listed in one location at **Section 15.10: Summary**.

15.3.3.4 The guidance recommended that mitigation measures to be relied upon in scoping out aspects from the assessment should be provided in the EIA Scoping Report section and in a commitments register. The guidance does not provide any specific examples of the

types of proposed mitigation for agricultural land and soils. Nevertheless, **Section 15.7: Design, Mitigation and Enhancement Measures** provides further details of the proposed mitigation measures.

15.4 Assessment Methodology

- 15.4.1.1 The assessment methodology is based on determining the sensitivity and magnitude of impact on the relevant receptors of agricultural land and soil resources.
- 15.4.1.2 The assessment methodology will follow published guidelines, IEMA's A New Perspective on Land and Soil in Environmental Impact Assessment¹⁹, and will also be in line with the assessment methodology and terminology set out in **Section 5: EIA Methodology** of this EIA Scoping Report.
- 15.4.1.3 The sensitivity of agricultural land will be determined according to its ALC grade, with Grade 1 being the most sensitive and Grade 5 the least. The magnitude of impact will be determined according to the area of land removed from agricultural production, and the duration of that removal.
- 15.4.1.4 The sensitivity of soil resources will be determined by considering their resilience to handling and disturbance (which is largely affected by texture and moisture content) in accordance with Table 15-1 below.

Table 15-1: Agricultural Land and Soils - Sensitivity

Sensitivity	Agricultural Land	Soil Resources
Very High	Grades 1 and 2	Peat Soils
High	Subgrade 3a	Soils with high clay and silt fractions (clays, silty clays, sandy clays, heavy silty clay loams and heavy clay loams) and organo-mineral and peaty soils where the Field Capacity Days (FCD) are 150 or greater. Medium-textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams) where the FCDs are 225 or greater. All soils in wetness class (WC) V or VI.
Medium	Subgrade 3b	Clays, silty clays, sandy clays, heavy silty clay loams, heavy clay loams, silty loams and organo-mineral and peaty soils where the FCDs are fewer than 150. Medium-textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams) where FCDs are fewer than 225. Sands, loamy sands, sandy loams and sandy silt loams where the FCDs are 225 or greater or are in WCIII and WCCIV.
Low	Grades 4 and 5	Soils with a high sand fraction (sands, loamy sands, sandy loams and sandy silt loams) where the FCDs are fewer than 225 and are in WCI and II.

- 15.4.1.5 The magnitude of impact will be determined according to the extent to which the ecosystem functions and services (including its use for agricultural purposes) provided by soils are able to continue and in accordance with IEMA guidance²⁶⁸. The terminology referred to as standard magnitude criteria in **Section 5: EIA Methodology** will be used (i.e. referring to major/ moderate /minor / negligible) as set out in Table 15-2 rather than IEMA's terms (i.e. high/ medium/ low/ very low) to allow impacts and

¹⁹ IEMA, A New Perspective on Land and Soil in Environmental Impact Assessment, https://www.iema.net/media/3xejdu0u/2022-iema_land_and_soils_guidance.pdf

effects terminology to be consistent across the ES, as acknowledged as acceptable practice in the IEMA guidance.

Table 15-2: Agricultural Land and Soils - Magnitude of Change

Magnitude	Agricultural Land and Soils
High	Permanent, irreversible loss of one or more soil functions or soil volumes (including permanent sealing or land quality downgrading), over an area of more than 20ha or loss of soil-related features (e.g. biomass production, habitat support, soil carbon, soil hydrology) or Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of more than 20ha or gain in soil related features.
Medium	Permanent, irreversible loss of one or more soil functions or soil volumes, over an area of between 5 and 20ha or loss of soil-related features or Potential for improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of between 5 and 20ha or gain in soil related features.
Low	Permanent, irreversible loss over an area of less than 5ha or a temporary, reversible loss of one or more soil functions or soil volumes, or temporary, reversible loss of soil-related features. or Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of less than 5ha or a temporary improvement in one or more soil functions due to remediation or restoration or off-site improvement, or temporary gain in soil-related feature.
Very Low	No discernible loss or reduction or improvement of soil functions or soil volumes that restrict current or proposed land use.

15.4.1.6 The receptor sensitivity and the magnitude of change are then combined to evaluate the overall significance of effects, as set out in Table 15-3

Table 15-3: Significance Matrix

	Sensitivity			
Magnitude	Very High	High	Medium	Low
High	Major	Major/ Moderate	Moderate	Moderate/ Minor
Medium	Major/ Moderate	Moderate	Moderate/ Minor	Minor
Low	Moderate	Moderate/ Minor	Minor	Negligible
Very Low	Moderate/ Minor	Minor	Negligible	Negligible

15.5 Baseline Conditions

15.5.1 Existing baseline

15.5.1.1 The Solar Development Site is shown on the Provisional ALC map⁷¹ as good to moderate quality Grade 3 agricultural land, with a small area of Grade 2 in the south. The majority of the Grid Cable Route Search Area is shown as Grade 3 land. The Southern Grid Cable Route Search Area has a higher proportion of Grade 2 land compared to the Northern and Middle Grid Cable Route Search Areas.

15.5.1.2 The Provisional ALC data cannot be used to classify individual sites due to limitations of scale and changes to the classification system. Detailed ALC surveys are required to establish the definitive grade of agricultural land. ALC surveys are ongoing at the Solar Development Site and preliminary results suggests a mixture of Grade 2, 3a and 3b

land. Further information will be provided in the ES that is provided in the Application.

- 15.5.1.3 Given that large areas of the Solar Development Site will remain undisturbed during construction and operation, and that the Solar Development Site will be returned to agricultural use at the end of the Proposed Development lifetime, the surveys are being undertaken at an observation density of one per 2ha, supported by soil pit data and laboratory analysis. Consultation will be undertaken with Natural England to agree the scope of survey and density of observations, and to share survey results as they become available.
- 15.5.1.4 At each observation point the following characteristics are assessed for each soil horizon up to a maximum of 120cm or any impenetrable layer:
7. soil texture;
 8. stone content;
 9. colour (including localised mottling);
 10. consistency;
 11. structural condition;
 12. free carbonate; and
 13. depth.
- 15.5.1.5 Topsoil samples are submitted for laboratory determination of particle size distribution (to confirm hand texturing in the field), pH, organic matter content and nutrient contents (phosphorous (P), potassium (K) and magnesium (Mg)).
- 15.5.1.6 The data is analysed according to the published guidelines and criteria for assessing agricultural land in order to determine the definitive land grade.
- 15.5.1.7 Based on desk-top data and initial survey results, there are three soil associations present within the Solar Development Site. In order of prevalence these are:
- Elmtun 1 association, which is mapped in the south and in a few east-west orientated bands running across the centre and north of the Solar Development Site. This association is characterised by shallow, brashy, calcareous, fine loamy soils over limestone. These soils are typically well drained in WC I²⁰.
 - Elmtun 3 association, which is mapped within east-west orientated bands between the Elmtun 1 units in the centre and north of the Solar Development Site. This association is also characterised by shallow, brashy, calcareous, fine loamy soils over limestone but the association also includes some deeper, slowly permeable, mainly calcareous, clayey soils. These soils are typically well drained in WC I, with some component soils seasonally waterlogged, in WC II-III.
 - Ragdale association, which is mapped in a small area in the north of the Solar Development Site. These soils are typically slowly permeable and clayey or fine loamy over clayey. They are seasonally waterlogged, in WC III-IV.

15.5.2 Future Baseline

- 15.5.2.1 Future baseline considerations for agricultural land use and soils include factors such as change in soil functionality due to climatic factors and future land use changes arising from pressures of development on agricultural land and changing agricultural practices.

²⁰ Soil wetness and soil droughtiness are the main limitations of the ALC.

- 15.5.2.2 Defra and the Welsh Government commissioned a study to assess how future changes in climate could affect ALC grades. The study found that soil droughtiness is likely to be the main determining factor of ALC under the various climate scenarios, with the potential for very large areas of England, particularly in the east and south-east of the country, to be downgraded to poor quality Grade 4 land. Therefore, agricultural land within the Site is expected to deteriorate with climate change due to increased droughtiness. **Section 6: Climate Change Resilience** provides further information on expected climate changes for the region and associated resilience measures.

15.6 Potential Impacts and Effects

15.6.1 Construction

- 15.6.1.1 During construction, arable agricultural uses will cease within each of the field parcels within the Proposed Development to accommodate the solar PV panels and for laying the underground cables.
- 15.6.1.2 The level of disturbance to the soil resource caused by the installation of the Proposed Development will be variable: most disturbance is anticipated to be due to the installation of permanent access tracks, substations and compounds, as well as temporary disturbance during the installation of the cables. This matter is Scoped In to the ES.

15.6.2 Operation and Maintenance

- 15.6.2.1 Subject to demand and balancing ecological requirements, agricultural uses including sheep grazing may resume within the Solar Development Site once construction is complete, other than in the areas proposed for associated infrastructure, including the proposed On-Site Substation(s), the BESS and access tracks.
- 15.6.2.2 Although the main effects on agricultural land and soils would occur as a consequence of construction and are therefore to be assessed and reported in the construction phase, there would also be effects on soil health that would accrue during the operational phase of the Proposed Development. It is well established that soil health improves when arable land is converted to permanent pasture, with increases in soil organic matter, soil carbon and soil moisture, and these impacts and effects are Scoped In and will be assessed and reported in the ES that accompanies the Application.
- 15.6.2.3 Any maintenance works or replacement of components during the operational phase are not likely to adversely impact soils, and standard soil management measures will be applied through the OEMP. Therefore, the potential impact of maintenance works or the replacement of components on soils are **Scoped Out** of the assessment.

15.6.3 Decommissioning

- 15.6.3.1 The effect on agricultural land quality at decommissioning will be influenced by the extent of disturbance caused by the removal of the solar PV panels, for example the presence and dimensions of leftover voids. It is assumed that vegetation planted for landscaping and ecological purposes would be left in-situ on handback of land to landowners following decommissioning (with the exception of grassland planted under the Panel Areas). It is currently anticipated that cables will be decommissioned in situ,

in which case no further disturbance to the soil and land would be necessary along the Grid Cable Route Search Area. This matter is Scoped In to the ES.

15.6.4 Potential Impacts on Farm Holdings

- 15.6.4.1 The impacts on farm holdings form part of the socio-economic assessment but, on the basis that landowners within the Solar Development Site have signed up to a voluntary agreement and have considered the potential effects on the viability of farm holdings, any effects on individual owner-occupied farm holdings can be **Scoped Out** of both the construction and operation phases. Justification for scoping out these effects will be given through providing relevant data and information in the ES to demonstrate that the landowners are willing participants in the Proposed Development and have accepted the impacts on their farm businesses by offering their land for inclusion within the Proposed Development.
- 15.6.4.2 There is a potential for effects on tenant farmers to occur where the tenants have not reached private agreement with their respective landowners. Effects on these holdings will be Scoped In. For the purposes of the assessment in the ES, if information is not obtainable from tenants, assumptions made will be clearly stated.

15.7 Design, Mitigation and Enhancement Measures

15.7.1 Embedded Measures

- 15.7.1.1 The Proposed Development is currently evolving through an environmentally-led iterative design process (as described in **Section 2: Site Description and the Proposed Development**). At the outset of this design process the Applicant has set out a series of Design Principles (refer to **Section 2.4: Environmental Design**) which the Applicant is seeking to achieve, as far as reasonably practicable, in the design of the Proposed Development.
- 15.7.1.2 Embedded measures can comprise modifications to the design of a scheme made during the pre-application phase that seek to avoid or minimise impacts, that are an inherent part of the design and do not require additional action to be taken. Therefore, embedded measures may comprise, or be informed by, the Design Principles as well as other mitigation measures.
- 15.7.1.3 Embedded measures for the Proposed Development relevant to agricultural land and soils include:
- within the Proposed Development design, seeking to site access tracks, compounds and substations on the lowest quality land available within each parcel;
 - maintaining the integrity of agricultural land drainage systems;
 - maintaining provision of water for livestock; and
 - restoring temporarily acquired agricultural land to its former land use and quality.

15.7.2 Management Plans

- 15.7.2.1 A suite of management plans will be in place for the Proposed Development. Outline versions of these management plans will incorporate standard industry best practice, considered as embedded measures, as well as any further mitigation that is deemed

required as a result of the EIA process. These will be submitted with the DCO application to secure the commitments contained within.

15.7.2.2 Those relevant to agriculture and soils include:

- Outline Soil Management Plan (oSMP);
- oCEMP;
- oCTMP;
- oOEMP;
- oLEMP; and
- oDEMP.

15.7.2.3 The oSMP, as well as the overarching oCEMP, will incorporate best practice measures to minimise likely adverse effects on agricultural land and soil, as far as reasonably practicable.

15.7.2.4 Appropriate Requirements will be included in the draft DCO to secure development of these outline versions of management plans to full versions that would be submitted to the relevant planning authority for approval.

15.8 Likely Significant Effects

15.8.1.1 The construction of the Proposed Development will result in the temporary but long-term removal of land from its current agricultural use (noting some areas of the Solar Development Site may be utilised for cut grass for feed or sheep grazing) for the lifetime of the Proposed Development (60 years), and the temporary but short-term use of agricultural land along the Grid Cable Route Search Area during the period of construction only.

15.8.1.2 Effects on BMV (Grades 1, 2 and 3a) agricultural land will mostly be of a temporary nature although for the purposes of the Agriculture and Soils assessment, permanent impacts are assumed in the locations of substations, BESS and access tracks (even if restored to agricultural use on decommissioning) due to the long-term sealing of subsoils and long-term storage of topsoils. Given the large area of arable agricultural land at the Site, there is the potential for significant effects on agricultural land and consequential food production to arise.

15.8.1.3 Associated with the reduction in food production from the Site, there is also the potential for impacts on the viability of farm holdings that would remain following the loss of land to the Proposed Development. This assessment will concentrate on impacts to tenanted farm holdings, given that the landowners within the Solar Development Site will have already assessed the impact of the Proposed Development on the viability of their businesses.

15.8.1.4 Given the prevalence of clay and clay loam soils on the Solar Development Site, which are less resilient to handling and disturbance, there is the potential for adverse effects to occur during the construction phase.

15.8.1.5 There is also the potential for likely significant beneficial effects on soil resources to arise during the operational phase by managing the land as permanent pasture rather than as arable use during the lifetime of the Proposed Development.

15.9 Assumptions, Limitations and Uncertainties

- 15.9.1.1 Detailed soil and ALC survey data is not available for the entire Solar Development Site as this data is being collected and will inform the EIA. Therefore, a combination of available soil survey data for the Solar Development Site at a density of 1 observation every 2ha and publicly available baseline information for the Grid Cable Route Search Area has been used to inform the description of baseline conditions presented in this section. Surveys of the Solar Development Site will inform receptor sensitivity of the soil resource and agricultural land on-site in order to identify potential impacts and likely effects in the ES.

15.10 Summary

- 15.10.1.1 A summary of those matters proposed to be Scoped In and **Scoped Out** of the assessment are set out in Table 15-4 below.

Table 15-4: Agricultural land and soils scoping summary

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Agricultural land	Construction	Scoped In	N/A
	Operation	Scoped Out	The removal of land from agricultural production occurs as a consequence of the construction rather than operation of the Proposed Development
	Decommissioning	Scoped In	N/A
Agricultural holdings	Construction	Scoped In	N/A
	Operation	Scoped Out	Potential impacts on the viability of tenanted farm holdings to be assessed. The landowners are willing participants in the Proposed Development and will already have assessed the impact on their farm businesses. The effects of the Grid Connection Cables on other farm holdings will involve short-term, temporary occupation of land to install the cables (at a depth that the land could still be harvested/ploughed) before being handed back to the landowner and can be Scoped Out for further assessment.
	Decommissioning	Scoped Out	
Soil resource	Construction	Scoped In	N/A
	Operation	Scoped In	
	Decommissioning	Scoped In	

16. Other Environmental Topics

16.1 Introduction

- 16.1.1.1 The aim of the scoping stage is to focus the EIA on those environmental aspects that may be significantly affected by the Proposed Development. The following sections provide a summary of other environmental topics which have been considered during the preparation of this EIA Scoping Report. Initial assessment work has determined that effects associated with the topics in this section will not be significant. Therefore, it is proposed that these topics can be addressed relatively briefly, without requiring standalone sections. The Other Environmental Topics chapter of the ES will include a brief assessment of each of the topics identified below. The EIA methodology set out in **Section 5: Environmental Impact Assessment Methodology** will not apply to this section, as for example, to outline an assessment methodology or baseline conditions may not be necessary if a preliminary or screening assessment identifies that there will be no or negligible impacts.
- 16.1.1.2 For clarity, these topics are not **Scoped Out** of the EIA. Rather, it is proposed that they are addressed proportionately within the ES in relation to the likelihood for significant effects (for example, as technical appendices), and reported in the ‘Other Environmental Topics’ chapter of the ES.
- 16.1.1.3 Legislation, planning policy context and guidance relevant to ‘Other Environmental Topics’ is summarised in each section below.

16.2 Air Quality

16.2.1 Legislation, Planning Policy Context and Guidance

- 16.2.1.1 The following legislation, policy and guidance has been considered:
- Air Quality Standards Regulations 2010, including amendments (2016)²⁷¹;
 - The Environment Act (1995)²⁷²;
 - The Environment Act (2021)²²;
 - The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023²⁷³;
 - Overarching NPS for Energy (EN-1) (2024)⁵;
 - Draft Overarching NPS for Energy (EN-1) (2025)²⁶;
 - NPS for Renewable Energy Infrastructure (EN-3) (2024)¹⁶;
 - Draft NPS for Renewable Energy Infrastructure (EN-3) (2025)²⁷;
 - The NPS for Electricity Networks Infrastructure (EN-5) (2024)¹⁷;
 - Draft NPS for Electricity Networks Infrastructure (EN-5) (2025);
 - The NPPF (2024)²⁸;
 - The PPG (2024)²⁷⁴;
 - Air Quality Strategy for England (2023)²⁷⁵;
 - Clean Air Strategy (2019)²⁷⁶;
 - Environmental Improvement Plan: First Revision of the 25 Year Environment Plan (2023)²⁷⁷;
 - The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020²⁷⁸;

- Local Air Quality Management (LAQM) Technical Guidance LAQM.PG (2022)²⁷⁹;
- IAQM Guidance on the Assessment of Dust from Demolition and Construction (2024)²⁸⁰; and
- IAQM Land-Use Planning & Development Control: Planning for Air Quality (2017)²⁸¹.

16.2.2 Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table

- 16.2.2.1 The Planning Inspectorate provides non-statutory guidance and advice on the scope of NSIP solar developments. The guidance recommends that information is included on air quality receptors and the anticipated impacts.
- 16.2.2.2 The guidance also provides examples of the types of evidence/ assumptions to be provided in the EIA scoping request as follows:
- anticipated number, type of vehicle movements, and vehicle routing for all phases;
 - anticipated duration of activities (including earthworks);
 - typical plant and non-road mobile machinery to be used and expected locations for all phases;
 - location and characterisation of roads that construction traffic is to be routed along;
 - identification of the locations of any sensitive receptors (such as air quality management areas); and
 - likelihood of exceedance of relevant thresholds set out in the appropriate guidance on the need to undertake an assessment of effects (such as Institute of Air Quality Management (IAQM) guidance).
- 16.2.2.3 The guidance also provides examples of the types of proposed mitigation to be summarised in the commitments register:
- dust management measures set out in a draft control document;
 - traffic management measures set out in draft control document; and
 - buffer zones and/ or screening.
- 16.2.2.4 Evidence and assumptions relied upon in scoping out aspects of the assessment are provided in **Section 16.2.4. Scoped Out** aspects and associated assumptions are listed in one location within Table 16-2.

16.2.3 Baseline Conditions

- 16.2.3.1 RCC, LCC and SKDC undertake ambient air quality monitoring as part of their Local Air Quality Management responsibilities under Part IV of the Environment Act (1995)²⁸². The latest air quality status reports^{283, 284, 285} publish the air quality monitoring data obtained by each local authority, from automatic monitoring stations and a network of passive diffusion tubes.
- 16.2.3.2 There are no Air Quality Management Areas (AQMA) declared in the Solar Development Site or Grid Cable Route Search Area. SKDC has one AQMA declared for hourly and annual mean nitrogen dioxide (NO₂) concentrations²⁸⁶ encompassing Manthorpe Road, Wharf Road, High Street and London Road, located approximately 11.7km north-east of the Northern Grid Cable Route Search Area. There are no AQMA

declared by RCC²⁸⁶.

- 16.2.3.3 Measured data obtained from the most recent air quality annual status reports, show that there are no recorded exceedances of the NO₂ annual mean objective of 40 µg/m³ at any monitoring site.
- 16.2.3.4 RCC operate non-automatic NO₂ monitoring at 11 locations detailed in Table 16-1 below. The most representative monitoring site for the Solar Development Site is Tickencote, located approximately 215m south-west of the Solar Development Site. At this site, the annual mean NO₂ concentration recorded in 2022 was 12.3 µg/m³.

Table 16-1: Location of non-automatic nitrogen dioxide (NO₂) monitoring sites.

Site Name	X (Easting)	Y (Northing)	Distance to Solar Development Site
Tickencote	499060	309650	215m south-west
Egleton	487910	307540	9km west
Oakham Burley Park Way	486640	309710	9km west
Oakham Uppingham Road	486300	308490	10km west
Oakham High Street	486206	308740	10km west
Oakham, Brooke Road (Nr No 65)	485970	308400	10km west
Uppingham North Street East	486621	299780	16km south-west
Uppingham Market Place	486630	299640	16km south-west
Caldecott	486720	293460	20km south-west

- 16.2.3.5 SKDC operate a network of 58 NO₂ diffusion tube sites, with the maximum concentration recorded being 36.1 µg/m³ at SK33/34 roadside site in Grantham, approximately 20km north of the Solar Development Site. The monitoring undertaken in Stamford represents the closest monitoring to the Solar Development Site, with a maximum concentration of 26.6 µg/m³ recorded at a roadside site. There are no recorded exceedances of the annual mean objective of 40 µg/m³. The main source of air pollution within South Kesteven is identified as road traffic emissions from major roads including the A1, A52, A15 and A607²⁸⁷.

16.2.4 Potential Impacts

- 16.2.4.1 The potential air quality impacts of the Proposed Development are considered to be:
- impacts of dust arising during construction and decommissioning phases of the Proposed Development; and
 - impacts of vehicle and plant emissions during the construction and decommissioning phases of the Proposed Development.

16.2.5 Likely Significant Effects

- 16.2.5.1 The low numbers of vehicles that will be in use during the operation phase of the Proposed Development are set out in **Section 2: Site Description and the Proposed Development (Section 2.6: Operational Activities)**, which notes activity on the Solar Development Site will be restricted principally to vegetation management, equipment

maintenance and servicing, replacement of any component as required, periodic fence inspection and monitoring. Vehicle movements associated with replacement of solar infrastructure are assumed to be lower than used for construction. These movements have been considered in the context of the Environmental Protection UK (EPUK) and IAQM planning guidance²⁸¹. The EPUK IAQM guidance sets out the criteria to establish the need for an air quality assessment as being a change in light duty vehicle (LDV) flows more than 500 movements per day, outside of an AQMA. The predicted operational flows are below this criteria, as such an operational traffic assessment has been **Scoped Out** of requiring further detailed assessment as effects would be negligible.

- 16.2.5.2 The Applicant will avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment as far as reasonably practicable during operation and maintenance activities. Dust emissions are not anticipated to arise from operation and maintenance activities. Therefore, no significant combustion sources are expected, and no emissions are anticipated from the on-site infrastructure. Given the minimal traffic flows and absence of emissions expected, the consideration of air quality impacts during the operational phase is proposed to be **Scoped Out** of the EIA.
- 16.2.5.3 The potential impacts from dust emissions arising from activities during the construction and decommissioning phases of the Proposed Development, together with plant exhaust emissions from non-road mobile machinery (NRMM) associated with the construction of the Proposed Development will be considered as part of the ES using and assessed in accordance with the IAQM guidance²⁸⁰. This is a screening assessment and risk-based qualitative assessment approach for assessing and mitigating dust impacts and is considered the best practice approach for air quality assessments in the UK. Site-specific mitigation measures will be informed by the IAQM guidance and incorporated and controlled through the oCEMP. It is anticipated that with the implementation of effective site-specific mitigation measures, the environmental effect for air quality during construction will be not significant.
- 16.2.5.4 Construction and decommissioning related plant emissions are anticipated to represent a small source of emissions relative to ambient local conditions in the vicinity of the Site, based on the scale of construction that will occur and the number of plant vehicles that will be required (it is anticipated that there will be a maximum of 60 HGV trips per day (120 two-way movements) during peak construction periods, distributed across the network and access points around the Site). However, suitable mitigation measures for plant and motorised equipment will be incorporated into the outline oCEMP based on advice prescribed in the IAQM (2024)²⁸⁰.
- 16.2.5.5 The anticipated number of vehicles that will be in use during the construction and decommissioning phases of the Proposed Development are set out in **Section 2: Site Description and the Proposed Development (Section 2.5.5: Construction Traffic Management)**, which notes a maximum of 60 HGV trips per day (120 two-way movements) during peak construction periods. These movements have been considered in the context of the EPUK and IAQM planning guidance²⁸¹. The EPUK IAQM guidance sets out the criteria to establish the need for an air quality assessment as being a change in heavy duty vehicle (HDV) flows more than 100 movements per day, outside of an AQMA. The 120 peak movements are above this criteria. As 120 represents the peak and average daily flows are expected to be below 100 HDVs, it is considered unlikely that the Proposed Development would give rise to significant effects in relation to construction traffic emissions. As such, construction traffic has been **Scoped Out** as effects would be negligible. To support this conclusion, a technical appendix will be

provided as part of the Other Environmental Topics chapter of the ES, to present an assessment of construction-related road traffic emissions.

16.2.5.6 As part of this assessment, potential sensitive receptors will be identified for the construction and decommissioning of the Proposed Development based on a review of aerial photography, construction and decommissioning phasing plans and OS mapping, and with consideration to current guidance, including:

- IAQM (2024) Guidance on the assessment of dust and construction;
- PINS (2024) Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table; and
- Defra (2022) Local Air Quality Management Technical Guidance (TG22)²⁸⁸.

16.2.6 Summary

16.2.6.1 Table 16-2 summarises the potential construction, operation and decommissioning impacts. The Proposed Development is not expected to result in any material alteration to the baseline situation in respect of air quality. With the implementation of effective site-specific mitigation measures to be set out in the oCEMP, the environmental effect of the Proposed Development on air quality will be not significant. It is therefore anticipated that a specific air quality section in the ES is not required and rather, consideration of air quality effects will be reported in the ‘Other Environmental Topics’ chapter of the ES, supported by a technical appendix.

Table 16-2: Air Quality elements scoped in or scoped out of the EIA

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Vehicle emissions	Construction	Scoped Out	As described in Paragraphs 16.2.5.1 and 16.2.5.5 construction and operational traffic is expected to be below the threshold and so Scoped Out of the ES.
	Operation	Scoped Out	
	Decommissioning	Scoped Out	
Dust emissions	Construction	Scoped In	N/A
	Operation	Scoped Out	Due to the nature of the Proposed Development, no adverse dust effects are anticipated during operation, and this has been Scoped Out of further assessment.
	Decommissioning	Scoped In	N/A

16.3 Glint and Glare

16.3.1 Introduction

16.3.1.1 Glint and glare in an EIA context is the effect of reflected sunlight which has the potential to cause harm or discomfort to sensitive receptors. PV panels are designed to absorb as much of the sunlight that illuminates them as possible, but a proportion of the

incoming sunlight is reflected. These reflections have the potential to result in ‘glint’ and ‘glare’ and are defined as:

- Glint: the momentary receipt of a bright light; and
- Glare: the receipt of a bright light over an extended and/ or continuous period of time.

16.3.1.2 Reflected sunlight from PV panels can, under certain circumstances, be directed towards a location that will make it noticeable to an observer. This effect can be a nuisance, for example:

- if it is experienced within a residential dwelling, causing discomfort; or
- a safety hazard where it presents as a distraction or disability glare to vehicle users/operators, particularly where a reflection falls within the central area of vision as opposed to the periphery.

16.3.2 Legislation, Planning Policy Context and Guidance

16.3.2.1 No specific legislation exists in relation to the assessment methodology or quantification of the potential impact of glint and glare resulting from solar farm installations. However, relevant legislation, planning policies and guidance that will be considered as part of the glint and glare assessment include:

- **UK PPG – Renewable & Low Carbon Energy (2015)**²⁸⁹: This policy addresses the visual impact of large-scale solar farms, including the effect of glint and glare on the landscape, neighbouring uses, and aircraft safety. It does not define the methodology for assessments or quantify the potential impacts.
- **NPS for Renewable Energy Infrastructure (EN-3) (2024) and Draft NPS EN-3 (2025)**: EN-3 and Draft NPS EN-3 outline a methodology for glint and glare assessments for nationally significant renewable energy infrastructure. This includes mapping receptors, conducting qualitative and quantitative assessments, and considering mitigation measures such as anti-glare coatings and screening.
- **CAP 738 – Safeguarding of Aerodromes (2020)**²⁹⁰: This document identifies glint and glare as a potential risk to airport operations but does not provide specific guidance for solar PV installations. It also references the Federal Aviation Administration (FAA) interim policy for assessing glint and glare impacts set out below.
- **Interim Policy, FAA Review of Solar Energy System Projects on Federally Obligated Airports (2013)**²⁹¹: This policy provides guidance for assessing glint and glare impacts on air traffic operations, specifically focusing on Air Traffic Control Towers and final approaches. It mandated in the USA the use of the Solar Glare Hazard Analysis Tool (SGHAT). In 2021, the FAA interim policy was replaced by the ‘Federal Aviation Administration Policy: Review of Solar Energy System Projects on Federally-Obligated Airports (2021).
- **Federal Aviation Administration Policy: Review of Solar Energy System Projects on Federally-Obligated Airports (2021)**²⁹²: This revision concludes that glint and glare from solar energy systems are similar to other common features like water bodies and glass-façade buildings. It focuses on the impact on Air Traffic Control Tower cabs and no longer mandates the use of SGHAT in the USA.
- **Renewable energy developments: solar photovoltaic developments (2023)**²⁹³: This guidance note states that glint and glare assessments are essential for solar PV developments near aerodromes. It identifies Air Traffic Services (ATS) personnel and pilots as receptors and recommends consulting local aerodrome operators for specific requirements. Whilst the document identifies the potential risks of glint

and glare to air traffic movements, it does not define the methodology or how to quantify the results of an assessment.

16.3.3 Baseline Conditions

16.3.3.1 Aviation receptors identified within 10km of the Solar Development Site are listed below:

- Shacklewell Lodge Farm airfield GB-0250, located approximately 2.3km south-west of the Solar Development Site;
- Former RAF Cottesmore (Willmott Dixon Kendrew Barracks), located approximately 4.6km north-west of the Solar Development Site;
- RAF North Luffenham (former), located approximately 6.0km south-west of the Solar Development Site;
- Castle Bytham Airfield, located 6.5km north of the Solar Development Site; and
- RAF Wittering located approximately 7.2km south-west of the Solar Development Site and 4.7km of the Grid Cable Route Search Area.

16.3.3.2 Other receptors include nearby motorists using the local highway network (including the A1, which bisects the Solar Development Site), residential dwellings, rail lines, and PRow. These are outlined in **Section 2: Site Description and the Proposed Development** of this report.

16.3.4 Likely Significant Effects

16.3.4.1 At the Solar Development Site, operational glint and glare effects are considered to be fixed and will last for the duration of the Proposed Development's lifetime. The interaction of PV panels with locations where receptors may be present (e.g. vehicular junctions or pedestrian crossings on roads) is primarily influenced by their position, siting and choice of materials, where more reflective, or specular surfaces create a higher chance of distraction through glare.

16.3.4.2 The setback mounting of PV panels within the Solar Development Site from its boundaries outlined in **Section 2: Site Description and the Proposed Development (Section 2.4: Environmental Design)** combined with the distance to potential receptors will contribute to limiting how and where potential occurrences of glare could be created. Further, if required, a dark colour and a matt material finish of the PV panels would help to minimise potential occurrences of reflected light, reducing the likelihood that glare conditions could be created from the panels themselves.

16.3.4.3 Based on the implementation of design measures such as those described above, along with the potential for screening planting to be put in place, significant effects in relation to glint and glare are not considered likely. Nevertheless, as the design develops, consideration will be given to the potential for solar reflections to impact on sensitive receptors. This will include undertaking calculations to determine if reflected sunlight could occur at the identified receptor locations and whether it is likely to be a significant nuisance or hazard (e.g. to aviation or road safety or residential amenity). If it is likely to be a nuisance or hazard, mitigation will be proposed to reduce effects, as far as reasonably practicable.

16.3.4.4 The results and recommendations of the reflected sunlight assessment will be incorporated into the Proposed Development design and presented as a standalone

assessment appendix to the ES. It is considered that this will negate the need for a specific glint and glare chapter in the ES and instead, a summary of the appendix will be reported in the ‘Other Environmental Topics’ chapter of the ES, and relevant conclusions of that assessment will be taken into account in **Section 11: Landscape and Visual Amenity**.

16.3.5 Summary

16.3.5.1 A summary of those matters proposed to be Scoped In and **Scoped Out** of the assessment are set out in Table 16-3.

Table 16-3: Glint and Glare summary

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Glint and Glare	Construction, Operation and Decommissioning	Scoped Out	A separate assessment will be conducted and appended to the ES and mitigation measures implemented. Therefore, a glint and glare chapter is not considered to be required as part of the ES. The assessment will be summarised in the ‘Other Environmental Topics’ section and taken into account in the LVIA.

16.4 Ground Conditions

16.4.1 Legislation, Planning Policy Context and Guidance

16.4.1.1 The following legislation, policy and guidance has been considered:

- The Environmental Protection Act (1990)²⁹⁴;
- The Environmental Damage Regulations (2015)²⁹⁵;
- The Water Resources Act (1991)²⁹⁶;
- The Overarching NPS for Energy (EN-1) (2024);
- Draft Overarching NPS for Energy (EN-1) (2025);
- The NPS for Renewable Energy Infrastructure (EN-3) (2024);
- Draft NPS for Renewable Energy Infrastructure (EN-3) (2025);
- The NPS for Electricity Networks Infrastructure (EN-5) (2024);
- Draft NPS for Electricity Networks Infrastructure (EN-5) (2025);
- The NPPF (2024);
- PPG (2024);
- The Environment Agency Land Contamination Risk Management (LCRM) guidance (2023)²⁹⁷;
- Construction Industry Research and Information Association (CIRIA) Contaminated land risk assessment guidance (2001)²⁹⁸;
- Design Manual for Roads and Bridges (DMRB) environmental impact assessment guidance (2020, 2019)⁹⁰;
- Design Manual for Roads and Bridges (DMRB) Sustainability and Environment Appraisal LA 109 Geology and soils” (2019)²⁹⁹; and
- IEMA guidance on soil in environmental impact assessment (2022)³⁰⁰.

16.4.2 Baseline Conditions

16.4.2.1 This section discusses potential effects arising from the Proposed Development, with respect to Geology, Land Contamination and Minerals. The following aspects are

considered:

- potential effects on geology and soils and nearby geodiversity sites;
- potential effects upon mineral resources; and
- potential effects of contamination with regard to human health impacts and impacts on controlled waters.

16.4.2.2 The Grid Cable Route extends into Lincolnshire, and some of the land interacts with Mineral Safeguarding Area (MSA) specifically for limestone and sand and gravel. The Core Strategy and Development Management Policies document is clear that any application for non-minerals development in a MSA must be accompanied by a Minerals Assessment. This Minerals Assessment will include consultation with RCC and LCC as Minerals Planning Authorities to understand the details of land designated for mineral extraction in each of the local Minerals Plans, for example Mineral Consultation Zones, MSA and Preferred Areas. The Minerals Assessment will also include quantity and extent of resource, economic viability of extraction, viability and practicability of prior extraction and assessment against planning policies.

16.4.2.3 It is proposed that both a Preliminary Risk Assessment Report (PRA) and a Minerals Assessment will be produced and will form part of the Application (as appendices to the ES and/ or Planning Statement respectively). Ground disturbance at the solar farm will be limited and controlled under routine environmental design and management measures.

16.4.2.4 The Environment Agency's Land Contamination Risk Management (LCRM) Guidance³⁰¹ identifies that the first step, known as Stage 1, Tier 1, in evaluating land contamination risks is a PRA. The objective of the PRA is to identify and evaluate potential land quality risks and development constraints associated with the Proposed Development and to construct an initial conceptual site model and qualitative risk assessment that can be used to inform future decision making and the design of future ground investigation and/ or mitigation, should these be required. The PRA report will be presented as a technical appendix to the ES.

16.4.2.5 The PRA will include the following:

- details of land at the Proposed Development and surrounding area including development history, geology, hydrogeology, hydrology, soil and groundwater quality and environmental setting;
- a review of third-party environmental data sets;
- a qualitative assessment for Unexploded Ordnance (UXO);
- details of available site investigation reports for land within the Site;
- results of a site walkover documenting:
 - the existing layout, current operations and condition of the Site, its boundaries and immediate surrounding land.
 - a visual inspection of potential indicators of land contamination, e.g. spillages, disturbed ground and vegetation dieback; and
 - a visual inspection for geohazards or other ground conditions constraints.
- a conceptual site model (CSM) identifying potential contaminant sources, receptors and pathways between them and an evaluation of potential contamination linkages. This will be presented as a qualitative risk assessment. In this instance, the receptors are likely to include human health, controlled waters and geological/ geodiversity sites; and

- conclusions and recommendations based on the PRA findings, with recommendations for future intrusive assessments, if necessary.

16.4.2.6 Based upon the conclusions of the PRA, a number of environmental design and management measures would be employed as industry standard best practice to minimise impacts to both human health and controlled waters during the construction, operation and decommissioning phases of the Proposed Development, including those listed in Table 16-4 below. These will be incorporated into the oCEMP and oDEMP which will accompany the Application.

16.4.2.7 The Solar Development Site interacts with a MSA of RCC's Minerals Core Strategy and Development Control Policies Development Plan Document (DPD) . The safeguarding area covers the majority of the eastern area of Rutland and are for limestone and clay resources. A MSA is not a proposed area of extraction and does not mean that proposals will be permitted in the area; the main purpose of a MSA is to protect a mineral resource from sterilisation from surface development such as housing, industrial, or retail uses.

16.4.3 Mitigation

16.4.3.1 Potential environmental impacts relating to land contamination would be minimised, reduced or offset through the implementation of embedded mitigation. Measures will be proposed to address the risk of:

- human exposure through direct contact/ inhalation/ ingestion/ dermal uptake of contaminants potentially present in soil and groundwater;
- creation of preferential pathways and mobilisation of contamination;
- contamination of natural soils, driving of contamination into aquifers during any piling, contamination of groundwater;
- pollution and degradation of water quality of any underlying aquifer;
- infiltration and/ or runoff into the local drainage/sewerage network – pollution of drainage and sewerage network and any adjacent surface water features;
- runoff and infiltration of contaminants from material stockpiles;
- contamination of drainage and sewerage network and/ or groundwater; and
- spread of nuisance dusts and soils to the wider environment and local roads.

Table 16-4: Environmental design and management measures to be included in the oCEMP

Environmental design and measurement measures	Description summary
Regulatory/ Guidance	1. Work will be carried out in accordance with relevant Construction Design Management Regulations 2015³⁰², details of these measures will be presented within the Health and Safety Plan (H&SP), and the oCEMP. 2. The final CEMP will be prepared prior to commencement of works, setting out the management, monitoring, auditing and training procedures, and the mitigation measures that will be put in place during enabling works and construction, to maintain compliance with the applicable regulations. In order to reduce the likelihood of contamination and protect human health and controlled waters from effects related to ground conditions, the oCEMP will include mitigation measures such as those presented here, and the final CEMP will be in substantial accordance with the oCEMP and approved by the relevant planning authority as secured by Requirement in the draft DCO. 3. A Pollution Response Plan will be drafted prior to the commencement of works on-site. The plan will outline key pollution mitigation measures including a Control of Substances Hazardous to Health (COSHH³⁰³)/fuel inventory and key contacts to be notified in the event of a significant pollution incident, which may subsequently

Environmental design and measurement measures	Description summary
	lead to the contamination of controlled waters. Any fuel and COSHH chemicals will be stored in accordance with the relevant Environment Agency Pollution Prevention Guidance (PPG) notes (although withdrawn, these notes are still considered to provide a useful data source), the relevant Construction Industry Research and Information Association (CIRIA) publications and best practice measures outlined in the Environment Agency's replacement series, guidance for pollution prevention (GPP). Tanks and dispensing pumps will be locked when not in use to prevent unauthorised access. Information regarding spill prevention and disposal of COSHH items will be provided as part of the standard site induction presentations and during regular toolbox talks as the works progress. - If required, piling will be carried out in accordance with Environment Agency Guidance Note on Piling/ Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention.³⁰⁴ - Ground investigations will inform the Foundation Works Risk Assessment which will define the appropriate foundation design to mitigate risk. - Specification of concrete used in foundations and building structures will be selected based on the results of the chemical composition of the Site soil and groundwater. Guidance is provided by the BRE series 'Concrete in Aggressive Ground'³⁰⁵.
Waste	- Waste materials will be disposed of by the contractor(s) to appropriate recycling facilities or appropriately licensed landfills in line with the Site Waste Management Plan (SWMP) (an outline SWMP will be submitted with the DCO application and secured by forming part of the oCEMP). The appropriate landfill for the disposal of any contaminated soil off-site will depend on the waste classification. Where possible, excavated material will be re-used. - Any waste effluent arisings will be tested for appropriate physical and chemical parameters and, where necessary, disposed of at an appropriately licensed facility by a licensed specialist contractor(s).
Construction	- Oils and hydrocarbons will be stored in designated locations with specific measures to prevent leakage and release of their contents, include the siting of storage areas away from surface water drains, on an impermeable base with an impermeable bund that has no outflow and is of adequate capacity to contain 110% of the contents. Valves and trigger guns, where used, will be protected from vandalism and kept locked when not in use. Details of appropriate storage and handling measures will be presented within the CEMP. - Vehicles will be maintained to prevent accidental pollution from leaks. Static machinery and plant will include drip trays beneath oil tanks/ engines/ gearboxes/ hydraulics, which will be checked and emptied regularly via a licensed waste disposal operator. - The LLFA and the appropriate utility company will be consulted on the potential requirement for an oil interceptor and sediment trap at the point where site surface water runoff enters any sewerage network. - A spillage Emergency Response Plan (ERP) will be produced (and would form part of the CEMP) and would be communicated to staff at regular tool box talks. On-site provisions will be made to contain a serious spill or leak through the use of spill kits, booms, bunding and absorbent material. - Appropriate handling and disposal of construction materials during the laying of foundations. - During the enabling and construction stage of work, the contractor(s) will employ dust suppression measures when necessary to prevent the potential mobilisation of contaminated dust particles and their migration off-site. - Stockpiles and material handling areas will be kept as clean as practicable to avoid nuisance from dust. Dusty materials will be dampened down using water sprays in dry weather or covered.

Environmental design and measurement measures	Description summary
	10. The length of time materials are stockpiled on-site before being removed for re-use, recycling or disposal is to be kept to a minimum and stockpiles are to be covered with tarpaulins prior to disposal. 11. All stockpiles will be managed in accordance with the relevant BS. 12. Dust generating equipment and screening equipment will be located to minimise potential nuisance impacts to receptors, as far as practicable. 13. Complaints about dust will be investigated at the earliest opportunity and appropriate action taken to control the source or remedy the impact as appropriate. 14. Access roads will be regularly cleaned and damped down with water. 15. All vehicles entering and leaving the Site during the construction period will pass through a wheel washing facility. Vehicles used to transport materials and aggregates will be enclosed or covered in a tarpaulin. Vehicle movements will be kept to a minimum and vehicle speeds within the Site will be limited. 16. Appropriate use of personal protective equipment (PPE) and implementation and adherence to Health & Safety Protocols, Plans and Procedures. Construction workers will remain vigilant of ground conditions at all times and will report to the Principal Contractor any suspect areas of potential contamination. 17. Potentially contaminated made ground will be quantified prior to removal from excavations. 18. Advice will be sought by an environmental specialist should materials suspected of being contaminated be uncovered.

16.4.4 Likely Significant Effects

- 16.4.4.1 On-site activities when the Proposed Development is complete and operational will be limited to the maintenance and replacement of the infrastructure (as described in **Section 2.6: Operational Activities**). During maintenance activities there may be the need to use oils, grease, fuels, lubricants or cleaning agents on-site. There is a small risk of chemical pollution arising from accidental spillages during these operations. An oOEMP will be prepared to accompany the DCO and a final OEMP will be produced in substantial accordance with the oOEMP following grant of DCO to control operational environmental effects. This will include a spillage ERP, which maintenance staff will be required to have read and understood. On-site provisions will be made to contain a serious spill or leak through the use of booms, bunding and absorbent material.
- 16.4.4.2 Operational activities are proposed to be **Scoped Out** of the assessment of ground conditions. It is anticipated that the results and recommendations of the PRA report once incorporated into the oCEMP, along with the environmental design and management measures described above, will control any likely effects arising during the construction, operation and decommissioning phases so that they are not significant. This is considered to negate the need for a specific ground conditions chapter in the ES.

16.4.5 Summary

- 16.4.5.1 A summary of those matters proposed to be Scoped In and **Scoped Out** of the ES assessment are set out in Table 16-5.

Table 16-5: Ground Conditions summary

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Geology	Construction	Scoped Out	A PRA will be undertaken and will be appended to the ES and summarised within the Other Environmental Topics chapter of the ES. This report will identify sensitive geological receptors for example, SSSI.
	Operation		
	Decommissioning		
Land Contamination	Construction	Scoped Out	The PRA will include a CSM and qualitative risk assessment.
	Operation		
	Decommissioning		
Mineral resources	Construction	Scoped Out	A Minerals Assessment will be undertaken and will be appended to the Planning Statement that accompanies the Application and referred to in the ES.
	Operation		
	Decommissioning		
	Operation		
	Decommissioning		

16.5 Human Health

16.5.1.1 This section sets out the proposed scope and methodology for assessment of effects of the Proposed Development on Human Health. This has been informed by an overview of the environmental baseline conditions, along with the likely impacts of the Proposed Development on environmental, social and economic determinants of health.

16.5.1.2 This section should be read in conjunction with, and draws upon, the following sections of this EIA Scoping Report:

- **Section 2: Site Description and the Proposed Development;**
- **Section 16.2: Air Quality;**
- **Section 16.3: Glint and Glare;**
- **Section 16.4: Ground Conditions;**
- **Section 10: Water Environment and Flood Risk;**
- **Section 11: Landscape and Visual Amenity;**
- **Section 12: Noise and Vibration;**
- **Section 13: Socio-economics; and**
- **Section 14: Transport and Access.**

16.5.2 Study area

16.5.2.1 The study area for ‘human health’ comprises seven wards (Ryhall and Casterton, Normanton, Exton, Casewick, Greetham, Glen, Castle,) ³⁰⁶ in which the Proposed Development is located. Districts to be included are RCC, where the Solar Development Site is located, and LCC and SKDC, where the Grid Cable Route Search Area is located.

16.5.3 Legislation, Planning Policy Context and Guidance

16.5.3.1 Legislation relevant to the Proposed Development in regard to human health assessment is outlined below.

- Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

- 16.5.3.2 Policies at a national level relevant to the Proposed Development in regard to human health are outlined below. Local planning policies relevant to this topic will be identified in the ES that accompanies the Application.
- Overarching National Policy Statement for Energy (EN-1);
 - Draft Overarching NPS for Energy (EN-1) (2025);
 - National Policy Statement for Renewable Energy Infrastructure (EN-3);
 - Draft NPS for Renewable Energy Infrastructure (EN-3) (2025);
 - National Policy Statement for Electricity Networks Infrastructure (EN-5);
 - Draft NPS for Electricity Networks Infrastructure (EN-5) (2025); and
 - National Planning Policy Framework.
- 16.5.3.3 Standards and guidance relevant to the Proposed Development in regard to human health are outlined below:
- Planning Practice Guidance: Healthy and safe communities, 2022;
 - Institute of Environmental Management and Assessment (IEMA) Guide to: Determining Significance For Human Health In Environmental Impact Assessment³⁰⁷;
 - Institute of Environmental Management and Assessment (IEMA) Guide to: Effective Scoping of Human Health in Environmental Impact Assessment³⁰⁸;
 - Public Health England (PHE) (now UK Health Security Agency): Advice on the content of Environmental Statements accompanying an application under the Nationally Significant Infrastructure Planning Regime (2021);
 - Public Health England Strategy 2020-2025 (2019); and
 - Spatial Planning for Health: An Evidence Resource for Designing Healthier Places (2017).
- 16.5.3.4 **Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table**
- 16.5.3.5 The Planning Inspectorate provides guidance on the scope of solar projects. With regard to human health it states that if scoping out an assessment of vehicular emissions & dust and noise & vibration from a health assessment, this should be appropriately cross-referenced to the air quality and noise sections of the scoping report.
- 16.5.3.6 The appropriate cross reference is provided in the ‘Potential Impacts’ section, along with the ways this is proposed to be secured and mitigated as set out in ‘Design, mitigation and enhancement’ section below.

16.5.4 Baseline Conditions

Existing Baseline

- 16.5.4.1 An initial high-level summary of key indicators deemed relevant to likely health impacts of the Proposed Development for the local area has been undertaken to gather existing information in relation to human health. Baseline information has been obtained from the following sources: Key sources include:
- Office for National Statistics (ONS) Census 2021³⁰⁹;
 - ONS local indicators³¹⁰;
 - ONS Nomis³¹¹; and
 - Department of Health and Social Care public health profiles (2023)³¹².

- 16.5.4.2 Public Health England produces data at the local authority level and publishes health profiles. These profiles provide a snapshot of public health in an area and help local government and health service providers to understand local community health needs and priorities.
- 16.5.4.3 Table 16-6 sets out the health and wellbeing indicators for the local authorities in which the Proposed Development is located, compared to regional and national averages. The data shows the population generally to be older than the East Midlands and England averages, to have a lower unemployment rate and tend to have better general health.

Table 16-6: Human health baseline indicators

Datasets	Wards							Local Authorities			East Midlands	England
	Ryhall and Casterton (Rutland)	Normanton (Rutland)	Exton (Rutland)	Greetham (Rutland)	Casewick (South Kesteven)	Glen (South Kesteven)	Castle (South Kesteven)	Rutland County Council	South Kesteven District Council	Lincolnshire County Council		
Demographic and social data												
Population (2021) ^{309,311}	2,936	3,172	1,368	2,475	5,719	2,366	2,231	41,000	143,400	768,400	4,880,200	56,489,800
Population aged under 16 (%) (2021) ³¹¹	9.7	16.0	11.8	9.6	15	17.3	13.9	16.4	17.7	16.7	18.1	18.5
Population aged 65 and over (%) (2021) ³¹¹	25.2	24.7	33.3	15.6	27.9	23.6	31.1	25.3	23.0	23.4	19.4	18.3
Ethnic minority population (%) ³¹¹	2.1	3.0	1.6	14.2	2.2	2.0	1.8	5.2	4.2	4.0	4.3	19
Residents ages 16 years and over in employment (%) (2021) ³¹¹	58.7	59.8	51.4	35.8	53.4	56.7	53.6	53.7	56.7	53.0	55.1	55.7
Unemployment (%) (2021) ³¹¹	1.7	1.4	1.5	2.2	2.0	1.7	1.8	1.7	2.2	2.3	2.4	2.9

Datasets	Wards							Local Authorities			East Midlands	England
	Ryhall and Casterton (Rutland)	Normanton (Rutland)	Exton (Rutland)	Greetham (Rutland)	Casewick (South Kesteven)	Glen (South Kesteven)	Castle (South Kesteven)	Rutland County Council	South Kesteven District Council	Lincolnshire County Council		
Claimant Count (%) claiming unemployment related benefits aged 16-64 (2024) ³¹⁰	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8	2.8	3.2	3.6	4.1
Education of level 4 and above qualifications (2021) ³¹¹	35.2	42.1	42.0	29.4	34.5	37.8	30.1	37.9	30.1	25.6	29.1	33.9
No qualifications (2021) ³¹¹	12.9	10.3	12.5	18.5	15.2	12.2	15.4	13.1	16.9	20.5	19.5	18.1
Health data												
General Health – bad or very bad (2021) ³¹¹	3.2	3.2	4.2	4.9	3.7	3.8	4.7	3.5	4.8	5.8	5.3	5.2

Datasets	Wards							Local Authorities			East Midlands	England
	Ryhall and Casterton (Rutland)	Normanton (Rutland)	Exton (Rutland)	Greetham (Rutland)	Casewick (South Kesteven)	Glen (South Kesteven)	Castle (South Kesteven)	Rutland County Council	South Kesteven District Council	Lincolnshire County Council		
Disability – day-to-day activities limited a lot or a little (%) ⁽²⁰²¹⁾ ³¹¹	15.3	13.9	15.6	22.0	15.9	14.8	18.8	15.8	17.9	20.2	17.7	17.3
Life expectancy at birth (male) (years) (2023) ³¹²	N/A	N/A	N/A	N/A	N/A	N/A	N/A	81.7	79.4	78.2	78.9	79.3
Life expectancy at birth (female) (years) (2023) ³¹²	N/A	N/A	N/A	N/A	N/A	N/A	N/A	86.6	84.2	82.3	82.7	83.2

16.5.5 Future Baseline

- 16.5.5.1 The ONS population projections are summarised in Table 16-7 below. It shows, in line with England and East Midlands predicted trends, the proportion of the population in the study area aged over 65 is projected to increase from 26.2% (Rutland) and 24.8% (South Kesteven) to 32.6% (Rutland) and 31.4% (South Kesteven). Correspondingly, the proportion of the population aged 64 and under is projected to decrease, with the largest decrease in the working age population (15-64) which is predicted to decrease five percentage points to 52.9% (Rutland) and just under a 5% decrease to 53.6% in South Kesteven.

Table 16-7: Population projection data³¹³

Area	2023 estimate	2033 projection	2043 projection
Study area (Lincolnshire, South Kesteven, Rutland local authorities)			
0-14	15.9% (Rutland) 16.8% (South Kesteven)	14.5% (Rutland) 15.0% (South Kesteven)	14.4% (Rutland) 14.9% (South Kesteven)
15-64	57.9% (Rutland) 58.4% (South Kesteven)	54.9% (Rutland) 55.5% (South Kesteven)	52.9% (Rutland) 53.6% (South Kesteven)
65+	26.2% (Rutland) 24.8% (South Kesteven)	30.5% (Rutland) 29.5% (South Kesteven)	32.6% (Rutland) 31.4% (South Kesteven)
East Midlands			
0-14	17.2%	15.8%	15.9%
15-64	62.5%	60.7%	59.4%
65+	20.3%	23.5%	24.7%
England			
0-14	17.7%	16.1%	16.2%
15-64	63.1%	61.5%	60.0%
65+	19.2%	22.4%	23.9%

16.5.6 Potential Impacts

- 16.5.6.1 A broad definition of health has been considered, defined by the WHO as: “*a state of complete physical, mental and social wellbeing and not merely an absence of disease or infirmity.*”³¹⁴ The assessment is based on the ‘wider determinants of health’ model, which recognises that health is influenced by a range of social, economic and environmental factors known as health determinants, such as access to health and education services, availability of training and employment opportunities and the quality of the built and natural environment.
- 16.5.6.2 As stated in the IEMA Guide to Determining Significance³⁰⁷, the consensus in literature and among public health practitioners and impact assessors is that a ‘population health’ approach may be taken when assessing health effects in EIA. Population health refers to the health outcomes of a group of individuals, including the distribution of such outcomes within the group. Health assessment considers effects on the general

population and, where relevant, groups with specific vulnerabilities. Effects on individuals are not considered to lead to potential health effects in the context of this assessment.

- 16.5.6.3 The IEMA Guide to Effective Scoping of Human Health in Environmental Impact Assessment recommends the inclusion of a health chapter within the EIA where: *“wider determinants of health not covered by other EIA technical topics have been scoped in”* or *“where other topics have been scoped to assess potential effects to human and community receptors and there are likely and potentially significant population health implications from such assessments.”*
- 16.5.6.4 The IEMA Guide to Effective Scoping of Human Health in Environmental Impact Assessment goes on to state that: *“Where other EIA technical topics do not have likely and potentially significant population health implications this should be explained with a concise justification within the EIA Scoping Report health section.”*

Construction

- 16.5.6.5 The following potential impacts on environmental determinants of health have been considered:
- Noise and vibration (**Section 12.5: Potential Impacts and Effects**): there is potential for noise and vibration impacts from construction activities and construction traffic. The Proposed Development is generally remote from residential receptors. The closest residential receptors to the Solar Development Site are described in **Section 2: Site Description and the Proposed Development (Section 2.1.1.20: Human Receptors and 2.1.2.15 for the Grid Cable Route Search Area)**. The assessment criteria used in the noise assessment will take account of human responses to different types and levels of noise. BPM will be implemented to manage noise and vibration emissions from construction with embedded measures described within the oCEMP. No changes to noise exposure at the community level are expected and therefore no potential effects on population health are identified.
 - **Section 16.2: Air Quality**: the effects to air quality from the Proposed Development has been **Scoped Out** of the ES although a screening assessment for road traffic emissions will be provided as an appendix to the ES and any impacts from dust will be assessed within a dust assessment. Construction-related plant emissions are anticipated to represent a small source of emissions relative to ambient local conditions in the vicinity of the Site based on the scale of construction that will occur and the number of plant vehicles that will be required. However, suitable mitigation measures for plant and motorised equipment will be recommended based on advice prescribed in the IAQM (2024) guidance and incorporated into the oCEMP. Both the road traffic emissions screening and dust air quality assessments will consider the effects of the Proposed Development on pollutants linked to human health outcomes including the potential effects as a result of increased exposure to pollutants at individual receptors. Health outcomes will be considered in the significance criteria used in these appendices, with sensitive human health receptors identified in the baseline. Due to the small number of sensitive receptors in proximity to the Site and the A roads serving the Site (including the A1), no overall change in exposure to air pollution is expected

at the population level and therefore there are no potential effects on population health.

- Landscape and visual impacts (**Section 11.6: Potential Impacts and Effects**): The Proposed Development is located within a rural area and there is potential for changes to visual amenity. Any amenity related impacts to human health from the Proposed Development will be assessed and reported within **Section 11: Landscape and Visual Amenity**.
- **Section 16.4: Ground Conditions**: the effects to ground conditions from the Proposed Development have been **Scoped Out** of the ES and a PRA will be produced. Within the PRA, sensitive human health receptors will be identified in the contamination assessment. The significance criteria used in this assessment take account of human health responses to contamination and mitigation measures will be provided to assist in compliance with regulations to protect health, where required. As a result of the embedded design and control measures secured via the oCEMP, no potential adverse effects on human health are anticipated.
- Water environment (**Section 10.5: Potential Impacts and Effects**): there is potential for groundwater and surface water impacts from construction activities. The Proposed Development intersects with the River Gwash and the West Glen River with numerous tributaries in the vicinity of the Site. The legal framework for the protection of water quality and the embedded mitigation to be included to assist in compliance are set out in **Section 10: Water Environment and Flood Risk** as a result of the embedded design and control measures secured via the oCEMP, no potential adverse effects on human health are identified.

- 16.5.6.6 Consideration of human health and wellbeing is integral to the environmental assessments set out above. While some topics have identified the potential for environmental effects on individual sensitive receptors during construction, the likely scale of effects, taking into account embedded mitigation, is not considered to result in potentially significant effects on health outcomes at the population level and therefore this is proposed to be **Scoped Out**.
- 16.5.6.7 Combined environmental impacts, such as noise and visual impacts, have the potential to change local amenity, affecting people's attachment to and enjoyment of their local environment, its perceived quality and distinctive characteristics. However, based on the likely nature and scale of environmental impacts, and the mitigation measures to be employed, and the distance of the Proposed Development from residential areas and community receptors, the construction of the Proposed Development is not considered likely to lead to any potentially significant changes in local amenity. Therefore, effects on human health arising from impacts on environmental amenity during construction are proposed to be **Scoped Out**.
- 16.5.6.8 With consideration to the rural location of the Proposed Development, albeit in close proximity to the A road network and the design and control measures described in **Section 14: Transport and Access**, it is expected that construction traffic and the movement of HGV will not result in the disruption or nuisance affecting the communities in proximity to the Proposed Development and it is not considered likely that any community severance effects would arise as a result of construction traffic. Therefore, effects on population health arising from the impacts of construction related to traffic or in relation to access and connectivity are proposed to be **Scoped Out**.
- 16.5.6.9 Any potential direct or indirect effects to PRow, amenity or access to recreational green

space from the construction of the Proposed Development will be assessed within **Section 11: Landscape and Visual Amenity**, **Section 12: Noise and Vibration** and **Section 13: Socio-economics**. Construction impacts, which are temporary in nature, will reduce the value of these routes. However, due to the rural nature of the study area, residents will have access to alternative recreational routes locally. Overall, the construction impacts on PRow are not considered to materially affect the local population's ability to enjoy green space and engage in outdoor activity, and therefore no potential health effects at a population level are identified. Therefore, health effects arising from construction impacts on green space and physical activity are proposed to be **Scoped Out**.

- 16.5.6.10 The construction phase will provide temporary employment opportunities, some of which may be taken by local people. Construction also has the potential to benefit local businesses and suppliers (see **Section 13: Socio-economics**). While some benefits may be experienced by individuals, the number of local construction jobs and the scale of local economic benefit is not considered likely to affect the overall health and wellbeing of communities in the study area. This issue is therefore **Scoped Out** of the EIA.
- 16.5.6.11 There are no effects on public open land during construction. Effects on rural bridleways and footpaths that cross the site, including temporary and permanent diversions and amenity impacts, are assessed in **Section 13: Socio-economics**. This considers effects on the value of these routes for users, which incorporates factors such as enjoyment of green space and physical activity. While construction will result in a temporary reduction in the quality of affected rural PRow, the wide availability of alternative routes means that there will be no overall reduction in access to green space and physical activity for the study area population. Therefore, no potential effects on human health at population scale have been identified, and this is **Scoped Out** of the ES.
- 16.5.6.12 As outlined in **Section 13: Socio-economics**, construction of the Proposed Development is anticipated to have minimal impact on access to local business and community and recreational facilities. With the implementation of management plans including the oCEMP, no potential significant human health effects at a population scale are identified and this is therefore **Scoped Out** of the EIA.

Operation

- 16.5.6.13 The following potential impacts on environmental determinants of health have been considered in respect of the operation phase impacts of the Proposed Development in this EIA Scoping Report:
- Noise and vibration (**Section 12.6: Potential Impacts and Effects**): the assessment criteria used in the noise assessment will take account of human responses to different types and levels of noise. There are potential noise and vibration impacts from the operation of the Proposed Development due to solar infrastructure and associated BESS, the On-Site Substation(s), transformers, invertors and any associated vehicle movements. However, it is not anticipated that any noise impacts arising from plant and supporting infrastructure would be at levels deemed likely to give rise to likely significant effects, particularly in consideration of the passive nature of solar PV development. Plant items such as solar PV modules, PV module mounting structures and cabling will not produce operational noise emissions. No major vibration sources are anticipated as part of

the Proposed Development. Therefore, any potential direct and indirect effects to human health at a population scale have been **Scoped Out**.

- **Section 16.2: Air Quality:** the effects to air quality from the Proposed Development have been **Scoped Out** of the ES. Traffic flows associated with the operational stage (including during replacement activities) will be below the IAQM and EPUK land use guidance criteria for requiring an air quality screening assessment, as described in **Section 16.2: Air Quality**. No overall change in exposure to air pollutants is expected at the population level and no potential effects on human health are anticipated, therefore this aspect is **Scoped Out**.
- **Landscape and visual impacts (Section 11.6: Potential Impacts and Effects):** The Proposed Development is located within a rural area and there is potential for impacts and effects to visual amenity during the operational stage. The visual assessment within **Section 11: Landscape and Visual Amenity** will consider the effects on wellbeing and perceptions of the quality of the local environment by individuals at affected locations. However, these effects are not considered to result in potential effects on human health and wellbeing at the population scale and therefore this aspect is **Scoped Out**.
- **Section 16.4: Ground Conditions:** sensitive human receptors will be identified in the PRA. The significance criteria used in the assessment will take account of human health responses to contamination and mitigation measures will be provided to ensure regulatory compliance to protect human health. As a result of these measures, no potentially significant human health effects have been identified and therefore this matter is **Scoped Out**.
- **Water environment (Section 10.6: Potential Impacts and Effects):** The Proposed Development intersects with the River Gwash and the West Glen River with numerous tributaries in the vicinity of the Site. The legal framework for the protection of water quality and the embedded mitigation to be included to assist in compliance are set out in **Section 10: Water Environment and Flood Risk**. No potential adverse effects on human health at a population scale are identified and therefore this matter is **Scoped Out**.

16.5.6.14 Consideration of human health and wellbeing is integral to the environmental assessments set out above. While some topics have identified the potential for environmental effects on individual sensitive receptors the potential for environmental effects on individual sensitive receptors, the likely scale of effects, taking into account embedded mitigation, is not considered to result in potential effects on health outcomes at the population level. Therefore, health effects arising from operational impacts on environmental determinants of health are proposed to be **Scoped Out**.

16.5.6.15 Combined environmental impacts, such as noise and visual impacts, have the potential to change local amenity, affecting people's attachment to and enjoyment of their local environment, its perceived quality and distinctive characteristics. However, based on the likely nature and scale of environmental impacts and the distance of the Proposed Development from residential areas and community receptors, the construction of the Proposed Development is not considered likely to lead to any potentially significant changes in local amenity. Therefore, effects on human health arising from operational impacts on environmental amenity are proposed to be **Scoped Out**.

16.5.6.16 As described in **Section 14: Traffic and Access**, operational traffic is not anticipated to be significant and no potential impacts on accessibility and active travel are identified. Therefore, no potential human health effects in relation to disruption and annoyance have been identified during operation and is **Scoped Out** of the ES.

- 16.5.6.17 There are no potential impacts on health, social care or other community infrastructure during operation, since no traffic-related severance impacts have been identified (see **Section 14: Transport and Access**) and the development will not introduce a new population. Therefore, health effects arising from impacts on access and connectivity during the operational phase are proposed to be **Scoped Out**.
- 16.5.6.18 There are no potential health effects associated with reduced access to open land and green space during operation (See **Section 13: Socio-economics**). Operational effects on PRoW would include changes in the character of routes as well as the provision of new or extended routes. The effects on users, both positive and negative, are assessed in **Section 13: Socio-economics**. No overall change in access to green space and physical activity for the study area population is expected and therefore no potential human health effects at population scale have been identified and this issue is **Scoped Out** of the ES.
- 16.5.6.19 The number of local jobs created during operation and associated effects on the local economy will be small (see **Section 13: Socio-economics**) Employment created by the Proposed Development will not affect health and wellbeing outcomes at a population scale. Therefore, no potential human health effects have been identified during operation and is **Scoped Out** of the ES.

Decommissioning

- 16.5.6.20 Potential impacts during the decommissioning phase are considered to be similar to the construction phase. The ES will provide a description of the activities and works (including the anticipated duration) which are likely to be required during decommissioning and where any likely significant effects have been identified for construction stage activities (within sections of the ES where potential health effects are considered), an evaluation of whether similar effects could occur during decommissioning will be undertaken. Changes to baseline information that could happen in the intervening period would be addressed via a commitment to a final DEMP, which would be secured via Requirement in the draft DCO.

16.5.7 Design mitigation and enhancement measures

- 16.5.7.1 Embedded mitigation measures identified by the following topics in this EIA Scoping Report are relevant to human health:
- **Section 10: Water Environment and Flood Risk;**
 - **Section 12: Noise and Vibration;**
 - **Section 13: Socio-economics;**
 - **Section 14: Traffic and Access;**
 - **Section 16.2: Air Quality;** and
 - **Section 16.4: Ground Conditions.**
- 16.5.7.2 The construction and operation of the Proposed Development has the potential for limited impacts on human health. Assessment of potential impacts however, and inclusion of appropriate mitigation measures will be covered elsewhere in the ES and within supporting documentation including the chapters of the ES above and the following management plans which will support the Application:
- oCEMP;

- oCTMP;
- oPRoWMP;
- oLEMP
- oOEMP; and
- oDEMP.

16.5.8 Summary

16.5.8.1 A summary of those matters proposed to be Scoped In and **Scoped Out** of the assessment are set out in Table 16-8 below.

Table 16-8: Human Health elements scoped in or scoped out of the EIA.

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Environmental impacts	Construction	Scoped Out	Environmental impacts on sensitive receptors will be assessed in the relevant topic assessment chapters. These assessments include consideration of risks to human health at individual sensitive receptors. The scale of impacts, taking into account embedded and good practice mitigation measures, are not considered to result in any potential impacts on health outcomes at the population level.
	Operation		
	Decommissioning		
Traffic	Construction	Scoped Out	The proximity to the A road network will reduce the risk of impacts on wellbeing and quality of life associated with increased traffic flows and HGV. Design and control measures outlined in Section 14: Transport and Access (14.7: Likely Significant Effects) will mitigate disruption and annoyance associated with construction, operational and decommissioning traffic.
	Operation		
	Decommissioning		
Green space and physical activity	Construction	Scoped Out	There are no potential health effects associated with reduced access to open land and green space (including its links to physical activity) during construction, operation or decommissioning (See Section 13: Socio-economics).
	Operation		
	Decommissioning		
Access and connectivity	Construction	Scoped Out	Due to proximity to A roads, it is unlikely that accesses and connectivity to community services and facilities will be impacted by road congestion or increased journey time during construction. During operation, no significant additional traffic is anticipated.
	Operation		
	Decommissioning		
Economic and employment impacts	Construction	Scoped Out	The jobs created not as part of the Proposed Development is not considered likely to affect the overall health and wellbeing of communities in the study area. Economics and employment effects will be considered in Chapter 13: Socio-economics .
	Operation		
	Decommissioning		

16.6 Major Accidents and Disasters

16.6.1.1 This section sets out the proposed scope and methodology for assessment of the vulnerability of the Proposed Development to major accidents and disasters (MA&D) during its construction, operation and maintenance, and decommissioning, caused by natural hazards or man-made hazards and any likely significant environmental effects that could arise from this. This has been informed by an overview of the environmental baseline conditions, along with the anticipated key issues likely to be associated with the Proposed Development, **as described in Section 2: Site Description and the Proposed**

Development, in respect of MA&D. This section sets out some of the receptors of relevance, and the approach to the assessment of the Proposed Development's vulnerability to MA&D during construction, operation and decommissioning phases.

16.6.1.2 This section is supported by the following appendices:

- **Appendix D: Major Accidents and Disasters Long List.**

16.6.2 Legislation, Planning Policy Context and Guidance

16.6.2.1 The following legislation, policy and guidance has been considered:

- The Infrastructure Planning (Environmental Impact Assessment) Regulations (2017)²;
- Health and Safety at Work etc. Act (as amended) (HSWA) (1974)³¹⁵;
- The Workplace (Health, Safety and Welfare) Regulations (1992)³¹⁶;
- The Lifting Operations and Lifting Equipment Regulations (1998)³¹⁷;
- The Management of Health and Safety at Work Regulations (as amended) (1999)³¹⁸;
- The Control of Substances Hazardous to Health Regulations (COSHH) (2002)³¹⁹;
- Civil Contingencies Act (2004)³²⁰;
- The Regulatory Reform (Fire Safety) Order (2005)³²¹;
- The Building Regulations (2010)³²²;
- CDM Regulations (as amended) (2015)³²³;
- The Overarching NPS for Energy (EN-1) (2024);
- Draft Overarching NPS for Energy (EN-1) (2025);
- The NPS for Renewable Electricity Infrastructure (EN-3) (2024);
- Draft NPS for Renewable Energy Infrastructure (EN-3) (2025);
- The NPS for Electricity Networks Infrastructure (EN-5) (2024);
- Draft NPS for Electricity Networks Infrastructure (EN-5) (2025);
- The NPPF (2024);
- The PPG (2023);
- National Risk Register (NRR) (2023)³²⁴;
- IEMA Major Accidents and Disasters in EIA: A Primer ('the IEMA Primer') (2020);
- Emergency Preparedness guidance on part 1 of the CCA (the 'CCA risk assessment framework') (2021)³²⁵; and
- UK Government: Working with public bodies in the infrastructure planning process (including Annex G: The Health and Safety Executive) (2024)³²⁶.

16.6.2.2 Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table

16.6.2.3 The Planning Inspectorate provides non-statutory guidance and advice on the scope of NSIP solar projects. The guidance recommends that information is included on MA&D receptors and the anticipated impacts. This is discussed further within 'Baseline Conditions' and 'Potential Impacts' sections below.

16.6.2.4 The guidance also provides examples of the types of evidence/assumptions to be provided in the EIA scoping request as follows:

- explanation as to how potential MA&D risks have informed the Site selection and the Proposed Development description in the scoping request;

- a MA&D risk identification screening exercise, taking into consideration the potential consequence and anticipated likelihood of occurrence, with consideration given to any relevant thresholds for significance identified within industry guidance, for example battery fire; and
- identification of any sensitive receptors in relation to the Site including for example Control of Major Accident Hazards Regulations (COMAH) sites.

16.6.2.5 The guidance also provides examples of the types of proposed mitigation to be summarised in the commitments register:

- commitment to providing, or provision of plans to manage risks identified in the scoping request, for example drainage strategy, oCEMP, battery safety management plan.

16.6.3 Baseline Conditions

16.6.3.1 The following aspects have been considered as part of the scope and methodology for MA&D:

- Potential for adverse environmental effects related to the vulnerability of the Proposed Development to risks of major accidents and/or disasters.

16.6.3.2 There is no specific regulatory guidance or standardised methodology for defining a study area in relation to the assessment of MA&D. In line with the IEMA Primer³²⁵, the study area is based upon the assessment on individual risk events as appropriate and therefore consider effects on receptors or risks from sources using a source-pathway-receptor approach. For scoping, the study area has been taken to cover the Site and any immediately adjoining aspects that could be considered to give rise to, or be impacted by, a potential major accident and/or disaster. For the purposes of scoping, an area of around 1km from the Site has been selected for the majority of major hazard risks, including presence of COMAH sites, with an extended study area up to 10km for aviation receptors aligned with the glint and glare assessment.

16.6.3.3 The following desk-top sources have been used to inform the existing baseline conditions of the study area:

- Applicant supplied data on existing utilities and infrastructure;
- the National Risk Register;
- Leicester, Leicestershire and Rutland (LLR) Prepared³²⁷;
- South Kesteven Strategic Risk Register³²⁸;
- LCC Community Risk Management Plan 2024-28³²⁹;
- COMAH 2015 Public Information Search³³⁰; and
- publicly available base mapping, such as Bing maps.

16.6.3.4 The National Risk Register (NRR) is based on information from the National Security Risk Assessment, which is the Government's assessment of the most serious risks facing the UK. The risks that meet the threshold for inclusion in the NRR would have a substantial impact on the UK's safety, security and/ or critical systems at a national level. The risk register classifies risks into categories including terrorism; cyber; state threats; geographic and diplomatic; accidents and systems failures; natural and environmental hazards; human, animal and plant health; societal; and conflict and instability.

- 16.6.3.5 The NRR states that for risks that are most relevant to a local area, a review of the relevant Community Risk Register should be undertaken. The LLR Prepared³²⁷ covers local risks relevant to Leicester, Leicestershire and Rutland. Risks associated with RCC which are considered relevant to the Proposed Development include:
- flooding;
 - severe weather;
 - influenza-type pandemic; and
 - counter terrorism.
- 16.6.3.6 South Kesteven Strategic Risk Register³²⁸ covers local risks relevant to South Kesteven. Those considered relevant to the Proposed Development include:
- cyber-attacks;
 - safeguarding;
 - health, safety and wellbeing;
 - quality materials, technology and buildings used for service provided by the Council;
 - recruitment and workforce development;
 - climate change; and
 - governance.
- 16.6.3.7 The LCC community risk management plan 2024-28³²⁹ outlines community risks relevant to Lincolnshire and the Proposed Development including:
- road traffic collision;
 - flooding;
 - non-domestic fires;
 - wildfires;
 - deliberate fires; and
 - malicious attacks.
- 16.6.3.8 The Solar Development Site crosses the route of an existing high pressure pipeline operated by the British Pipeline Agency (BPA) ('the Fina Pipeline'), a regulated major accident hazard pipeline under the Pipeline Safety Regulations (PSR) 1996³³¹. The location and relevant protections required for this asset are being considered in the ongoing design of the Proposed Development including offsets from the pipeline. Following technical engagement with BPA, measures to protect the pipeline appropriate protective provisions will be included in the DCO to ensure the protection of apparatus.
- 16.6.3.9 There are no COMAH sites located within the Site. The nearest COMAH site (Essendine, operated by The Heys Group Limited) is located approximately 920m east of the Grid Cable Route Search Area on Bourne Road in Essendine. Essendine is registered as an upper tier COMAH site³³². Upper Tier sites are those facilities that store, handle, or process significant quantities of hazardous substances.
- 16.6.3.10 Above and below ground electrical distribution and transmission infrastructure, including 400kV overhead lines and pylons are also located within the study area. The Grid Cable Route Search Area intersects two high pressure major accident hazard pipelines (Hatton to Peterborough) in the vicinity of Casewick. The location and relevant protections required for these assets are being considered in the ongoing design of the Proposed Development and following technical engagement with National Grid Gas (NGG), measures to protect the gas pipelines will be described appropriate

protective provisions will be included in the DCO to ensure the protection of apparatus.

- 16.6.3.11 Sections of the Grid Cable Route Search Area are located within Flood Zone 3, where the route intersects the River Gwash and River Tham.
- 16.6.3.12 The Solar Development Site intersects the Great North Road (A1). The A1, which forms part of the SRN bisects and borders the Solar Development Site. On-site cabling will need to pass under the A1 to connect the two parts of the Solar Development Site together. The associated protective provisions would be agreed with National Highways and other relevant consultees. A number of roads including Pickworth Road and a number of unnamed roads also cross the Solar Development Site. The Grid Cable Route Search Area is in close proximity to the East Coast Mainline railway. As far as reasonably practicable, direct effects on rail assets will be avoided through ongoing design development and refinement of the land required for the electrical connection through routeing and siting studies. The Peterborough to Manton Junction Line is located approximately 425m south from the closest part of the Site (Southern Grid Cable Route Search Area).
- 16.6.3.13 **Section 16.3: Glint and Glare** identifies the airports and airfields located within a 10km study area. The potential for glint and glare to affect aircraft, as well as highway users, will be considered within a technical appendix to the ES and if any risks are identified, mitigation to reduce the risk to as low as reasonably practicable (ALARP) via design mitigation will be incorporated into the Proposed Development design.

16.6.4 Potential Impacts

- 16.6.4.1 The Proposed Development is not considered to have high vulnerability to MA&D. Whilst the legislation is not explicit, the language of the EIA Regulations is aimed towards hazardous industries or operations (those with a 'high vulnerability' to major accidents). **Appendix D: Major Accidents and Disasters Long List** screens potential MA&D to identify those events that could occur, and to which the Proposed Development is particularly vulnerable, or which the Proposed Development may exacerbate the effects of. It considers whether existing design measures or legal requirements, codes and standards are already or will be in place to adequately control the potential major accident and/ or disaster, and/ or whether effects will be adequately covered or assessed by another topic scoped into the ES. The Proposed Development has the potential for the following potential impacts:
- on-site fires associated with technology such as batteries as a form of energy storage, and inverters. However, as standard the technology will have built in safety features including fire resistant construction, fire detection, suppression systems, emergency stop functions and isolation monitoring. In addition, an outline Battery Safety Management Plan (oBSMP) is to be completed to support the DCO Application, which would ensure adequate measures are in place to manage battery safety;
 - construction of the Proposed Development has the potential to interact with utilities during construction and decommissioning, with the potential to cause utility strike including in relation to the major accident hazard pipelines and electrical and gas infrastructure noted above;
 - unexploded ordnance (UXO) could be present and potentially disturbed during construction, to be assessed during PRA (**Section 16.4**);

- road accidents could occur during the construction or decommissioning phases involving vehicles associated with the Proposed Development, leading to potential fatality/ injury to members of the public;
- the potential for extreme weather events to be worsened due to the presence of the Proposed Development (e.g. impacts to flood risk) can be considered as adequately addressed as part of design, through compliance with required design standards to ensure climate resilience. In addition, a FRA is to be completed to support the DCO application to ensure that the Proposed Development and drainage strategy do not increase the risk of flooding on or off-site;
- accidental spillage of contaminants, such as hydrocarbons, and their subsequent release into the drainage system are considered to be low consequence events that do not meet the definition of a major accident or disaster, and are expected to be able to be managed and mitigated via the suite of management plans that will be in place, outlined further below; and
- the risk of an influenza-type pandemic and failure of NGET systems is not considered relevant to the vulnerability of the Proposed Development to MA&D.

16.6.5 Mitigation

- 16.6.5.1 Embedded measures are modifications to the design of a Proposed Development, made during the pre-application phase, that are an inherent part of the design and do not require additional action to be taken. Embedded measures relevant to MA&D include:
- All works will be undertaken in accordance with the CDM Regulations, including provision of appropriate pre-construction information to the appointed contractor(s), notification of construction works to the Health and Safety Executive (HSE) prior to their commencement and provision of a Health and Safety File for the Applicant/ operator following completion of construction works.
 - The final CEMP, secured as a Requirement of the draft DCO, will form a key part of the embedded mitigation. The oCEMP prepared to accompany the Application will explain how construction activities will be managed and controlled to demonstrate compliance with health, safety and environmental legislation, and other environmental permits, consents and licenses that will be required for construction of the Proposed Development, where relevant. The PRA and associated mitigation measures will feed into the oCEMP and oDEMP. The appointed construction contractor(s) will use risk assessments, working method statements, operating procedures and apply appropriate personnel training in order to minimise the risk of accidental scenarios occurring during the construction of the Proposed Development.
 - The designers for the Proposed Development have due regard to safety in Design Principles, including process safety and safeguarding from accidental scenarios. The design will consider both on-site hazards in terms of vulnerability to a MA&D and location of receptors off-site (in terms of the potential for the Proposed Development to be a source of a MA&D risk).
- 16.6.5.2 Considering the findings of **Appendix D: Major Accidents and Disasters Long List**, it is considered that the construction, operation and decommissioning of the Proposed Development has the potential for limited impacts on or suffer effects from MA&D. Assessment of potential impacts, and inclusion of appropriate mitigation measures will be covered elsewhere in the ES including:
- oCEMP;
 - oDEMP;

- oCTMP
- oBSMP; and
- PRA.

16.6.6 Summary

- 16.6.6.1 The effects arising during all phases of the Proposed Development are unlikely to result in significant effects relating to MA&D. The probability, likelihood and frequency of a major accident or disaster is very low in the instance of the Proposed Development and would be managed under established legislative requirements or the design process. As such, further assessment of the vulnerability to MA&D is **Scoped Out** of the assessment.
- 16.6.6.2 Nevertheless, it is proposed that the ES and/ or further supplementary assessments will include a detailed assessment of the risks associated with ground conditions and flood risk. The potential impacts arising from these risks will be assessed as part of the PRA and the FRA which will be submitted alongside the DCO Application.
- 16.6.6.3 Table 16-9 summarises the potential construction, operation and decommissioning impacts relevant to the MA&D assessment proposed to be Scoped In or **Scoped Out** of the EIA.

Table 16-9: Major Accidents and Disasters elements scoped in or scoped out of the EIA.

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Major Accidents and Disasters	All	Scoped Out	The Proposed Development is not considered to have high vulnerability to MA&D. The risks of MA&D will be managed under established legislation requirements, the design process and within other environmental assessments.

16.7 Telecommunications, Television Reception and Utilities

- 16.7.1.1 Solar farms have the potential to affect existing utility infrastructure below ground but are not at a height to affect above ground telecommunications. To identify any existing infrastructure constraints, both consultation and a desk-based study will be undertaken. Consultation with relevant telecommunication and utilities providers is a routine part of development and consultees will include water, gas and electricity utilities providers and telecommunications providers as appropriate. Information obtained from consultation will be used to inform the design and appropriate protective provisions will be included in the DCO to ensure the protection of apparatus. Relevant measures will be captured within the design, therefore a separate utilities ES chapter is not considered to be required.

16.7.2 Summary

- 16.7.2.1 Table 16-10 summarises the potential construction, operation and decommissioning impacts relevant to the telecommunications, television reception and utilities assessment

proposed to be Scoped In or **Scoped Out** of the EIA.

Table 16-10: Telecommunications, Television Reception Utilities Summary

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Telecommunications, Television Reception and Utilities	All	Scoped out	Due to the design, avoidance and mitigation measures proposed, no significant effects on utilities are anticipated.

16.8 Electromagnetic Field (EMF)

- 16.8.1.1 This section sets out electromagnetic field (EMF) receptors of relevance and the approach to the assessment of the Proposed Development's impacts during construction, operation (including maintenance) and decommissioning.
- 16.8.1.2 EMF arise from the generation, transmission, distribution and use of electricity. They occur around all electronic infrastructure and appliances that use electricity. In relation to the Proposed Development the most significant sources are from electricity cables, substations and associated infrastructure which will connect the Proposed Development to the National Grid.
- 16.8.1.3 Electricity infrastructure emits low-frequency electromagnetic radiation (EMR) which creates an EMF. EMF comprise electric and magnetic fields. Electric fields are the result of voltages applied to electrical conductors and equipment. In most cases they do not extend far from the source. Fences, shrubs and buildings easily block electric fields. Magnetic fields are produced by the flow of electric current; however, unlike electric fields, most materials do not readily block magnetic fields. The intensity of both electric fields and magnetic fields diminishes with increasing distance from the source. EMF can have both direct and indirect effects on human health.
- 16.8.1.4 The following legislation, policy and guidance has been considered:
- The Control of Electromagnetic Fields at Work Regulations 2016³³³;
 - National Policy Statement for Electricity Networks Infrastructure (EN-5), 2024;
 - Guidelines for limiting exposure to electromagnetic fields (100 kHz to 300 GHz), 2020 (updating the 1998 version), International Commission on Non-Ionizing Radiation Protection;
 - Advice on Limiting Exposure to Electromagnetic Fields (0-300GHz), Volume 15, No 2, 2004, National Radiological Protection Board; and
 - Power lines: demonstrating compliance with EMF public exposure guidelines, a voluntary code of practice, 2012, Department for energy and climate change.
- 16.8.1.5 **Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table.**
- 16.8.1.6 The non-statutory guidance and advice states the following: “Where proposed cables are over 132kV, an EMF assessment should be provided in an appendix to the Environmental Statement. This should include the location, routing and voltages of any cables over 132kV and a risk assessment to any human and ecological sensitive receptors within the ZoI.”

16.8.1.7 Evidence and assumptions relied upon in scoping out aspects of the assessment are provided within Section 16.8.5.

16.8.2 Study area

16.8.2.1 There is no specific regulatory guidance or standardised methodology for defining a study area in relation to the assessment of EMF. However, the intensity of both electric fields and magnetic fields diminishes with increasing distance from the source. Therefore, it is considered appropriate to restrict the study area to the Site boundary and any immediately adjacent residential and ecological receptors.

16.8.2.2 There are no legal requirements to shield EMFs from underground cables or provide buffers to protect human health in the UK because these cables are, by industry-standard, compliant with the International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998 exposure limits in the terms of the 1999 EU Recommendation even when measured directly on top of them. Therefore, the approach taken to the study area is considered appropriate and proportionate.

16.8.3 Baseline

16.8.3.1 Sources of EMF are present naturally in the environment. The EMF value from natural sources is estimated to be 50 tesla units μT^{334} (which measures the strength of magnetic fields) and the permitted public exposure limit set as a recommendation is $360\mu\text{T}^{335}$. These limits are set as long-term limits as in the short-term these can be exceeded in many ways, for example, at 1m from the appliance the EMF value of a vacuum cleaner can be $800\mu\text{T}^{334}$.

16.8.3.2 Several residential properties are adjacent to the Solar Development Site. These are outlined in **Section 2: Site Description and the Proposed Development**. There are a number of PRoW within the Solar Development Site. These are outlined in **Section 2: Site Description and the Proposed Development** and shown on **Figure 2.4**.

16.8.3.3 Surrounding the Grid Cable Route Search Area there are a number of residential and ecological receptors (as outlined in **Section 2: Site Description and the Proposed Development**). The routing of the Grid Connection Cables is likely to pass under watercourses, with the Southern Grid Cable Route Search Area passing under the River Gwash (watercourses within the Grid Cable Route Search Area are outlined in **Section 2.1: Site Description and the Proposed Development**).

16.8.4 Future baseline

16.8.4.1 The future baseline for EMF is expected to remain as the current existing baseline in the absence of the Proposed Development proceeding. However, changes to the land use within or immediately adjacent to the Site may occur as a result of the introduction of other developments which may either introduce new sources of EMF or new sensitive receptors to EMF (for example humans residing in residential properties, or utilising new community assets and recreational facilities). The approach to assessing cumulative effects from the interrelationship between different projects along with the Proposed Development is described in **Section 17: Cumulative and In-Combination Effects**.

16.8.5 Potential Impacts and Effects

- 16.8.5.1 Within the Solar Development Site, the on-site cabling is expected to be under 132kV and is therefore not expected to result in significant likely EMF effects on adjacent receptors.
- 16.8.5.2 The other sources of EMF will all be from within the Solar Development Site, comprising the On-Site Substation(s) and the BESS. The On-Site Substation(s) and BESS would not be publicly accessible. Employees accessing the On-Site Substation/s and BESS would be protected under exposure limits set in the Control of Electromagnetic Fields at Work Regulations 2016³³³.
- 16.8.5.3 EMF are expected to be at generally low levels and modern electricity infrastructure is designed to minimise EMF. EMF can be harmful at high-enough levels. However, the fields needed to interfere with the body's nervous system is much greater than those produced by the UK electricity system. As part of the Proposed Development, the On-Site Substation/s and BESS would be situated away from sensitive receptors to reduce noise, landscape and visual impacts and to ensure sufficient distance in case of a fire. Given these separation distances required for other purposes would exceed those required to mitigate the impacts of EMF, there is not considered to be a risk of significant effects due to these elements of the Proposed Development. Overall, there are minimal elements of the Proposed Development generating EMF and the distance of these sources from sensitive receptors will be minimised either by being placed underground or away from receptors. In light of this, there are not expected to be any potential impacts related to EMF to human or ecological receptors both within and immediately adjacent to the Solar Development Site.
- 16.8.5.4 The off-site cabling within the Grid Cable Route Search Area will be a 400kV cable. The Grid Connection Cable will be buried to an appropriate depth and, in line with the Proposed Development's Design Principles and relevant codes and practices, routed with buffers from residential and designated ecological receptors. Human receptors are likely to be users of PRoW, as their use of the PRoW is transitory therefore they will be only temporarily effected by EMF. The Design Principles for the Proposed Development will specify the distance cables will be installed under any rivers to reduce the effect on fish and an impact risk assessment on the risks associated with magnetic fields on fish and a monitoring plan will accompany the Application. Therefore, it is proposed to **Scope Out** EMF of the EIA assessment.
- 16.8.5.5 Management plans will also be in place for the Proposed Development. Those relevant to EMFs include:
- oCEMP;
 - oOEMP; and
 - oDEMP.

16.8.6 Summary

Table 16-11: EMF Summary

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Electromagnetic fields	All	Scoped out	Due to the design, avoidance and mitigation measures proposed, no significant effects on EMF receptors are

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
			anticipated. An impact risk assessment on the risks associated with magnetic fields on fish and a monitoring plan will accompany the Application where any below ground electric cables present a risk to fish.

16.9 Materials and Waste

- 16.9.1.1 The land within the Solar Development Site is primarily agricultural land and therefore minimal demolition waste will be produced as part of the Proposed Development. It is also anticipated that minimal site preparation and excavation waste and from supporting footings would be generated. The underground cabling runs through both agricultural land and roads, which are likely to generate arisings from activities, and would be re-used on-site where possible, as cable route cover.
- 16.9.1.2 All the electrical infrastructure such as solar PV modules, inverters, transformers, batteries and other supporting infrastructure will be manufactured off-site and delivered ready for installation. Therefore, construction and assembly waste is expected to be minimal, including packaging wastes (wood and plastics), fencing (metal and wood), Waste Electrical and Electronic Equipment (WEEE) and concrete.
- 16.9.1.3 Materials and waste generation during the operational phase will include maintenance and replacement of proposed infrastructure including the solar PV modules, inverters, BESS and transformers. There is the potential for largescale replacement of panels during operation and during this activity all replaced solar infrastructure would be reused or recycled, if possible, in line with good practice and market conditions at the time or disposed of appropriately under the WEEE Regs. Manufacturers of solar panels are legally required to take back old panels, under the WEEE Directive.
- 16.9.1.4 The replacement of cabling is not anticipated either during the proposed design life of the Proposed Development, but replacement would be undertaken, if necessary.
- 16.9.1.5 It is currently anticipated that all PV modules, mounting poles, inverters and transformers would be removed from the Solar Development Site and recycled or disposed of in accordance with good practice and market conditions at that time; however, it is expected that below ground cabling would not be removed. Subject to the requirements as set out in the oLEMP, which will specify vegetation to be retained, the Solar Development Site will be returned to its original use as far as reasonably practicable after decommissioning. For the purposes of assessment in this EIA Scoping Report (and in the ES), it is assumed that vegetation planted for landscaping and ecological purposes would be left in-situ on handback of land to landowners following decommissioning (with the exception of grassland planted under the Panel Areas).
- 16.9.1.6 In the UK, solar PV modules are subject to the WEEE Regulations 2013, as amended by the Waste (Miscellaneous Amendments) (EU Exit) (No. 2) Regulations 2019. The WEEE Regulations mandate that manufacturers must take back decommissioned solar PV modules for recycling. The aim is to ensure that the solar PV modules are disposed of responsibly and as much of the materials as possible are recycled. The Applicant will ensure that suppliers of solar PV modules for the Proposed Development are registered with a producer compliance scheme that has an industry managed take-back and

recycling scheme.

- 16.9.1.7 Solar PV modules are made of a frame (typically aluminium), glass, crystalline silicon solar cells and copper wiring, of which between 90 and 99% can be recycled.
- 16.9.1.8 Possibilities to re-use or recycle materials will be explored before resorting to disposal. These options would be in alignment with the Waste Management Plan for England 2021. There is a new industry emerging for recycling solar PV modules. This would be explored, in addition to any resale of any operational panels.
- 16.9.1.9 Assessment of potential impacts however, and inclusion of appropriate mitigation measures will be covered elsewhere in the ES and within supporting documentation, including:
- 16.9.1.10 Chapter 7: Greenhouse gas Emissions of the ES will set out the waste generation assumptions from the construction, operation and decommissioning phases;
- oCEMP;
 - oDEMP; and
 - Outline Materials and Waste Management Plan (oMWMP).
- 16.9.1.11 During the operational phase, activity on the Solar Development Site will be restricted principally to vegetation management, equipment maintenance and servicing, replacement as required, periodic fence inspection, and monitoring to ensure the continued effective operation of the Proposed Development. Replacement of some components will be required during the lifetime of the Proposed Development, either due to their service life or potential faults. The replacement of the solar infrastructure (including BESS) will be undertaken when needed and assumptions regarding replacement will be confirmed in the ES that accompanies the Application. This is unlikely to result in notable amounts of waste that would impact waste management infrastructure or consume materials in volumes that would notably impact supply chains. Details of waste mitigation and handling will be included in the oMWMP. Therefore, no likely significant effects are expected, and materials and waste are **Scoped Out** of further assessment and will not be considered further in the ES.

16.9.2 Summary

- 16.9.2.1 Table 16-12 summarises the potential construction, operation and decommissioning impacts relevant to the materials and waste assessment proposed to be Scoped In or **Scoped Out** of the EIA.

Table 16-12: Materials and Waste elements scoped in or scoped out of the EIA.

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Materials and Waste	All	Scoped Out	All the electrical infrastructure would be manufactured off-site and delivered ready for installation. Materials and waste generation during the operational phase would be minimal, including maintenance and replacement of proposed infrastructure. If largescale replacement of panels during operation is to happen, all replaced solar infrastructure would be re-used or recycled if possible or disposed of appropriately under the WEEE Regs. Manufacturers of solar panels are legally required to take back old panels, under the WEEE directive. The replacement of underground cabling is not anticipated either during the proposed design life of the Proposed Development but would be undertaken, if necessary. The decommissioning of the Proposed Development would involve the removal of all solar infrastructure.. Subject to the requirements as set out in the oLEMP, which will specify vegetation to be retained, the Solar Development Site will be returned to its original use as far as reasonably practicable after decommissioning

17. Cumulative and in-combination effects

17.1 Introduction

- 17.1.1.1 As noted in **Section 5: EIA Methodology**, cumulative effects are the results of multiple actions on environmental receptors or resources over time and are generally additive or interactive (synergistic) in nature. Two categories of cumulative effects are typically considered within cumulative effects assessment (CEA) chapter of an ES:
- in-combination effects from the interrelationship between different environmental effects of the Proposed Development ('intra-project' or 'combined' effects); and
 - 'cumulative effects' from the interrelationship between different projects along with the Proposed Development (or 'inter-project' effects).
- 17.1.1.2 In-combination effects, or intra-project effects, occur when a resource, receptor or group of receptors are potentially affected by more than one source of direct environmental impact resulting from the same development. For example, a community may be affected by noise and dust effects resulting from the construction phase activities of a single development.
- 17.1.1.3 Cumulative effects, or inter-project effects, occur when a resource, receptor or group of receptors are potentially affected by more than one development at the same time. For example, the construction traffic effects of a development in isolation may not be significant, but when combined with the construction traffic effects of another development (using the same geographical area at the same time) may result in likely significant cumulative effects on the surrounding highway network.
- 17.1.1.4 This section is supported by **Appendix C: Initial Long List for Cumulative Effects Assessment** and **Figure 17-1: Cumulative Assessment Long List** which illustrates the Site location in relation to an initial list of other proposed schemes that may be of relevance to the cumulative assessment.

17.2 Legislation, Planning Policy Context and Guidance

- 17.2.1.1 Legislation relevant to the Proposed Development in regard to cumulative and in-combination effects assessment is outlined below:
- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.
- 17.2.1.2 Policies at a national level relevant to the Proposed Development in regard to cumulative and in-combination effects are outlined below. Local planning policies relevant to this topic will be identified in the ES that accompanies the Application.
- Overarching National Policy Statement for Energy (EN-1) (2024);
 - Draft Overarching NPS for Energy (Draft EN-1) (2025);
 - National Policy Statement for Renewable Energy Infrastructure (EN-3);
 - Draft NPS for Renewable Energy Infrastructure (Draft EN-3) (2025);
 - National Policy Statement for Electricity Networks Infrastructure (EN-5) (2024); and
 - Draft NPS for Electricity Networks Infrastructure (Draft EN-5) (2025).
- 17.2.1.3 Standards and guidance relevant to the Proposed Development in regard to cumulative

and in-combination effects is outlined below.

- Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment, 2025⁴⁸ ('PINS Advice on CEA'); and
- Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development – Solar Scoping Table.

17.3 Assessment Methodology

17.3.1.1 This section is split into two parts, as outlined in **Section 17.1: Introduction:**

- in-combination effects assessment: and
- cumulative effects.

17.3.2 In-combination effects assessment

17.3.2.1 PINS Advice on CEA notes that the assessment of interrelationships between environmental topics of a proposed NSIP, such as between ecology and hydrology, are typically assessed as part of the specialist environmental chapters of an ES. In accordance with this guidance, in-combination effects will generally be considered within each environmental topic chapter of the ES, where relevant. The cumulative and in-combination effects chapter will then identify common environmental receptors/ resources where there is the potential for more than one impact to be experienced (e.g. users of PRoW that are receptors and impacted in the LVIA and transport chapters) and the potential for interactions between these impacts. The overall combined environmental effects will then be reported within the CEA chapter.

17.3.3 Cumulative effects assessment

17.3.3.1 PINS Advice Note on CEA provides a systematic approach to CEA which can be split into four distinct phases, as noted in Table 17-1, which will be applied to the Proposed Development.

17.3.3.2 PINS Advice on CEA states that the recommended process focuses cumulative effects with 'other existing development and/ or approved development'. To account for the evolution of other developments during the timescales for preparation of the Application, this assessment will be iterative and updated a number of times during the preparation of the Application.

Table 17-1: Stages of cumulative assessment

CEA stage	Key activities
Stage 1: Establish the Zone of Influence (ZoI) and establish the long list of 'other existing development and/ or approved development'	• identify the ZoI (study area) for each environmental aspect considered within the ES; • identify a long list of other developments in the vicinity of the Proposed Development which may have cumulative effects in consultation with the relevant local authority; and • undertake desk-top review of available environmental information for identified cumulative developments.
Stage 2: Establish the shortlist of 'other existing development and/ or approved development'	• identify which of the identified other developments from Stage 1 has the potential to give rise to significant cumulative effects by virtue of overlaps in temporal scope, due to the scale and nature of the other development/ receiving environment; or any other relevant factors.

CEA stage	Key activities
Stage 3: Information gathering	information relating to each of the other developments is gathered and reviewed
Stage 4: Assessment	- an assessment of the cumulative effects is undertaken. Each individual other development is reviewed in turn to identify whether there is potential for significant cumulative effects; - additional mitigation measures are identified

17.3.3.3 The approach to the identification of relevant existing developments and/ or approved developments for the ES will consider the PINS Advice on CEA alongside the advice in relation to identification and assessment of other developments for the purposes of Habitats Regulations Assessment (HRA)³³⁶ and traffic assessments³³⁷.

17.3.4 Stage 1 - Establishing the long list of ‘other existing and/ or approved development’

17.3.4.1 PINS Advice on CEA highlights the ‘other existing development and/ or approved development’ types that should be established for the CEA as:

- Tier 1
 - under construction;
 - permitted application(s), whether under the PA 2008 or other regimes, but not yet implemented;
 - submitted application(s) whether under the PA 2008 or other regimes but not yet determined; and
 - all refusals subject to appeal procedures not yet determined.
- Tier 2
 - projects on PINS’ Programme of Projects.
- Tier 3
 - projects on PINS’ Programme of Projects where a scoping report has not been submitted;
 - identified in the relevant Development Plan and emerging Development Plans, with appropriate weight given as they near adoption, recognising that there will be limited information available on the relevant proposals; and
 - identified in other plans and programmes (as appropriate) which set the framework for future development consents or approvals, where such development is reasonably likely to come forward.

17.3.4.2 The level of detail that is likely to be available to support the CEA will decrease along with the tiers, i.e. Tier 1 developments likely having the most detail available and Tier 3 developments having likely having the least detail available.

17.3.4.3 For the purpose of creating an initial long-list, other existing developments and/ or approved developments have been identified through a desk-based review of the following sources:

- NSIP from National Infrastructure Planning³³⁸;
- Transport and Works Act Orders (TWAOs) from Department for Transport³³⁹;
- applications for planning permission under the Town and Country Planning Act (TCPA) 1990;
- Projects requiring planning permission that have submitted an EIA Scoping Report; and

- allocations and Mineral and Waste EIA applications from RCC³⁴⁰, LCC³⁴¹ and SKDC³⁴².

17.3.4.4 Initial searches have been conducted using online sources, using the criteria set out in Table 17-2 to establish the initial long list of ‘other existing and/ or approved development’. The initial long-list presented in **Appendix C: Initial Long List for Cumulative Effects Assessment**, focusses on existing developments and/ or approved developments within an initial ZoI of the Solar Development Site (i.e. excluding the options under consideration for the Grid Connection (the Grid Cable Route Search Area) using the criteria set out in Table 17-2. As the Application progresses, this initial long-list would be refined and updated to include the land required for the Grid Connection. The final CEA will use the ZoI for each environmental topic and the Order Limits i.e. considering both the Solar Development Site and grid connection.

Table 17-2: Initial Long list search criteria

Development		Housing unit (no)	Housing land (ha)	Non-residential (ha)	Distance from Solar Development Site
NSIP		All	All	All	10km
Transport and Works Act Orders (TWAOs)		All	All	All	10km
Applications or allocations	Large scale	200+	4+	2+	10km
	Medium scale	10-199	0.5-4	1-2	2km
	Small scale	1-9	Less than 0.5	Less than 1	200m
Projects requiring planning permission that have submitted an EIA scoping report		All	All	All	5km
Mineral and Waste EIA applications		All	All	All	10km

17.3.4.5 It is proposed that formal consultation with RCC, LCC and SKDC via this EIA Scoping Report and at subsequent consultation stages will inform further refinements to this initial long-list to allow iterative updates of the CEA. A cut-off date will be agreed to enable a robust cumulative assessment in the ES.

Early identification of projects for CEA

17.3.4.6 A number of notable ‘other existing developments and/ or approved developments’ have been identified during the project development process. These developments will be considered and assessed within the CEA to be undertaken at later stages of the EIA but are presented in the initial long-list (**Appendix C: Initial Long List for Cumulative Effects Assessment**) to demonstrate awareness and so that they are addressed appropriately in the proposed scope for the CEA.

17.3.4.7 Within the 10km search area from the Solar Development Site set out in Table 17-2, there are three NSIP identified:

- Mallard Pass³⁴³ - a solar farm DCO granted in 2024 consisting of solar PV array and electrical storage and connection infrastructure. The Mallard Pass scheme’s order limits are approximately 852ha. At its closest point, the order limits for Mallard Pass are located 115m east of the Solar Development Site. The order limits for Mallard Pass are also partially intersected by the Middle and South Grid Cable

Route Search Areas. According to published sources, construction is expected to start in summer 2026 and take 24 months.

- East Northants Resource Management Facility (ENRMF) Western Extension³⁴⁴ consists of the western extension of the existing ENRMF for which was granted consent in 2013 and amended in 2018 requiring operations to cease and the site to be fully restored by the end of 2026. The proposed western extension was granted consent in January 2023 allowing an additional 26.8 ha of development (in addition to the existing site), an increase the volumes of hazardous waste that can be treated, and an extension of life until 2046. The order limits of East Northants Resource Management Facility Western Extension are approximately 8.7km south of the Solar Development Site.
- The Weston Marsh to East Leicestershire (WMEL) project is part of the Great Grid Upgrade and one of the proposed new substations (WMEL-A). The project involves the construction of a new 400kV overhead line and two new substations. The location of WMEL is approximately 6km north of the Solar Development Site and, as outlined in Section 2.3.2, may interact with the Proposed Development (Northern Cable Route Search Area).

17.3.4.8 Other existing developments and/ or approved developments in the initial long list presented in **Appendix C: Initial Long List for Cumulative Effects Assessment** that will be considered in the CEA and comments from the relevant authorities are invited via the formal EIA Scoping Opinion.

17.3.4.9 The Development Plan Documents that are considered relevant to the three authority areas (RCC, SKDC and LCC) are set out in **Section 3: Legislation, Policy Context and Alternatives (Section 3.3.4: Local Policy)**. In accordance with the certainty criteria for Tier 3 projects set out in the PINS Advice on CEA, allocations within current and emerging policy, where there is sufficient environmental information, will be considered as ‘other existing developments and/ or approved developments’ in the CEA of the ES that accompanies the Application. Examples of current and emerging policy allocations at a local level are identified in **Appendix C: Initial Long List for Cumulative Effects Assessment** and include the Woolfox Opportunity Area located adjacent to the Solar Development Site for which a new ‘Garden Community’ is proposed including mixed use (housing, employment and other) uses.

17.3.5 Stage 2 - Shortlist of ‘other existing development and/ or approved development

17.3.5.1 The final long list will be filtered to develop a final shortlist of other existing and/ or approved development to be included in the CEA at the time of application. This will allow the assessment to be proportionate and include only ‘other existing and/ or approved development’ with the potential to result in likely significant cumulative effects. The criteria to be used for shortlisting will be:

- Temporal scope: considering the potential for the ZoI and programme for the construction, operation and decommissioning of the ‘other existing and/ or approved development’ to overlap and interact with the Proposed Development.
- Scale and nature of development: considering if the ‘other existing and/ or approved development’ is likely to be defined as EIA development due to its potential to lead to significant environmental effects.
- Other factors: These will include consideration of potential impact pathways to identified sensitive receptors and their nature and capacity as the receiving environment.

17.3.5.2 Professional judgement will be applied where necessary so that only other existing and/or approved development likely to lead to significant cumulative effects are included. The conclusions of this shortlisting exercise will be documented using a table similar to that provided in PINS Advice on CEA, recording the reasons for excluding any development from further consideration. This will provide decision makers, consultation bodies and members of the public with a clear record of other existing development and/or approved development considered and the decision-making process with respect to the scope of the CEA.

17.3.5.3 RCC, LCC, SKDC and any other relevant consultation bodies will be consulted on the shortlisted other existing developments and/or approved developments proposed to be included in the CEA prior to Application submission, to agree the final shortlist for assessment.

17.3.6 Stage 3 - Information gathering

17.3.6.1 Information will be gathered for each of the shortlisted other existing developments and/or approved developments, relevant to their environmental effects. This information will include:

- proposed design and location information;
- proposed programme of construction, operation and decommissioning, and
- environmental assessment reports.

17.3.6.2 The information will be obtained primarily from the websites of RCC, LCC, SKDC, Department for Transport and PINS. This may be supplemented with information from liaison with other stakeholders and developers.

17.3.7 Stage 4 - Assessment

17.3.7.1 Environmental topic specialists will review the information gathered and will carry out a proportionate assessment of cumulative effects. They will consider how the reported effects of the other existing developments and/or approved developments would be likely to interact with the reported effects of the Proposed Development, to reach conclusions on the likely nature and significance of cumulative effects. The assessment will consider all residual (i.e. after mitigation) effects identified in the ES, not just those considered to be residual likely significant effects.

17.3.7.2 The significance of any cumulative effects will be determined using the same criteria as are used in the relevant individual topic assessments for the Proposed Development. Where there are limitations on the assessment due to the availability of information relating to the effects of the other existing developments and/or approved developments, those limitations will be noted.

17.3.7.3 In cases where likely significant cumulative effects are identified, it may be necessary to propose additional mitigation measures specifically for cumulative effects. These additional measures will be set out in the CEA chapter of the ES that accompanies the Application. These measures may be delivered solely by the Applicant or may, in some cases, be subject to agreement with another developer, which would be sought.

17.3.7.4 Appendix 2 (Matrix 1 - Assessment matrix) from the PINS Advice on CEA on cumulative effects will be used to guide the development of and reporting of the

assessment.

17.4 Assumptions, Limitations and Uncertainty

- 17.4.1.1 In accordance with the EIA Regulations, any difficulties encountered during assessment work that could affect the assessment and limitations and assumptions used for individual assessment areas will be set out in the ES.

18. Structure of the Environmental Statement

18.1 Overview

18.1.1.1 **Section 5: EIA Methodology (Section 5.4: Assessment of impacts and Effects)** of this EIA Scoping Report explains the general format proposed for the ES for the technical chapters 6-17 listed below. Considering the aspects/ matters in **Section 19: Summary and Conclusions** proposed to be Scoped In, an outline structure of the ES that will accompany the Application is provided within this section.

18.2 Structure

18.2.1.1 The ES will be structured as follows:

- Non-technical summary (NTS)
 - The NTS will summarise the findings of the ES as well as a concise description of the Proposed Development, the considered alternatives, baseline conditions, assessment methodology, potential environmental effects and mitigation measures. The NTS will be written in non-technical language and in an accessible format which can be understood by a wide audience.
- Main report (Volume I)
 - This document will comprise the main body of the ES. It will detail the findings of the EIA and any identified additional mitigation measures to avoid, reduce or minimise any potentially significant adverse environmental effects. Each topic will be assigned a separate technical chapter in the ES as follows:
 - Chapter 1: Introduction
 - Chapter 2: Site Description and the Proposed Development
 - Chapter 3: Alternatives and Design Evolution
 - Chapter 4: Consultation
 - Chapter 5: Environmental Impact Assessment Methodology
 - Chapter 6: Climate Change Resilience
 - Chapter 7: Greenhouse Gas Emissions
 - Chapter 8: Cultural Heritage
 - Chapter 9: Ecology and Biodiversity
 - Chapter 10: Water Environment
 - Chapter 11: Landscape and Visual Amenity
 - Chapter 12: Noise and Vibration
 - Chapter 13: Socio-economics
 - Chapter 14: Transport and Access
 - Chapter 15: Agriculture and Soils
 - Chapter 16: Other Environmental Topics
 - Chapter 17: Cumulative and In-combination Effects
 - Chapter 18: Summary of Environmental Effects
- Figures (Volume II)
 - This will comprise a complete set of figures which support the assessments undertaken.
- Technical appendices (Volume III)
 - These will comprise the supporting technical appendices to the topic chapters including background data, technical reports and survey data which support the assessments in the Main Report (Volume I).

18.3 Standalone assessments

- 18.3.1.1 In addition to the ES chapters, a number of standalone assessments will accompany the Application (as ES appendices). For the Proposed Development, these include:
- **Agricultural Land Classification Report** (to accompany the agriculture and soils ES chapter);
 - **Arboricultural Impact Assessment** (to accompany the landscape and visual ES chapter);
 - **Biodiversity Net Gain Report** (to accompany the ecology and biodiversity ES chapter);
 - **Outline Drainage Strategy** (to accompany the water environment ES chapter);
 - **Water Environment Regulations (WER) Assessment** (to accompany the water environment ES chapter);
 - **Flood Risk Assessment** (to accompany the water environment ES chapter);
 - **Glint and Glare Assessment** (to accompany the other environmental topics ES chapter);
 - **Habitats Regulations Screening** (and further Habitats Regulations Appropriate Assessment should this be required); (to accompany the other environmental topics ES chapter); and
 - **Preliminary Geo-environmental Risk Assessment** (to accompany the other environmental topics ES chapter).
- 18.3.1.2 The findings of these will support the ES chapters where applicable, and feed into the mitigation proposals for the Proposed Development.

19. Summary and Conclusions

19.1 Summary of the proposed EIA approach

- 19.1.1.1 In accordance with Regulation 8(1)(b) of the EIA Regulations, this EIA Scoping Report provides notification to the SoS that the Applicant will produce an ES which will accompany the DCO Application for the Proposed Development. This EIA Scoping Report has been produced to support an application for a Scoping Opinion with regards to the scope and level of detail of information to be provided in the ES, in accordance with Regulation 10 of the EIA Regulations.
- 19.1.1.2 This EIA Scoping Report has identified the likely significant effects of the Proposed Development with respect to each environmental topic and set out the proposed approach and methodology for further assessment in the EIA. Table 19.1 provides a summary of the proposed scope of the topics to be included in the ES.

Table 19-1: Summary of proposed scope of the EIA

Section/ Topic	Proposed scope of assessment (C =Construction, O = Operation, D = Decommissioning)	Aspects proposed to be Scoped Out	Rationale for aspects proposed to be Scoped Out
Section 6: Climate Change Resilience	Climate change resilience (O, D)	Construction climate change resilience (C) In-combination climate change impacts (C, O, D)	It is likely that the design thresholds for extreme heat and weather conditions that will be incorporated into the design and mitigation will be in place to protect against extreme weather events. Climate change is not expected to be so significant within the construction programme timescales as to require additional mitigation beyond best practice (i.e. oCEMP), therefore significant effects on construction are not expected. Projected temperature increases, changes in wind patterns, increase in heavy rainfall and increased risk of drought in combination with the Proposed Development are not expected to have a significant impact upon environmental receptors identified by other topic disciplines and are therefore Scoped Out .
Section 7: Greenhouse Gases	Greenhouse gas emissions (C, O, D)	N/A Refer also to Section 17: Cumulative and In-combination Effects	N/A Refer also to Section 17: Cumulative and In-combination Effects
Section 8: Cultural Heritage	Designated built heritage assets and conservation areas (C, O (Solar Development Site))	Designated built heritage assets and conservation areas (O (Grid Cable Route Search Area), D (Solar Development Site and Grid Cable Route Search Area))	As the cables for the grid connection will be below ground, there is no pathway for impacts on the setting of designated heritage assets beyond the construction phase. It is unlikely that decommissioning would result in the generation of additional significant effects to those resulting from construction and operation. While decommissioning of the Proposed Development in the Solar Development Site would result in change(s) to the setting of designated heritage assets and conservation areas through removal of all above ground equipment and infrastructure, the magnitude of impact resulting

Section/ Topic	Proposed scope of assessment (C =Construction, O = Operation, D = Decommissioning)	Aspects proposed to be Scoped Out	Rationale for aspects proposed to be Scoped Out
	Non-designated built heritage assets (C) (Solar Development Site and Grid Cable Route Search Area)	Non-designated built heritage assets (O, D) Solar Development Site and Grid Cable Route Search Area	from this is unlikely to result in significant effect(s) to the cultural significance (value) of any affected assets. It is unlikely that operation would result in significant effects to non-designated built heritage assets. This is because any physical impact(s) will have occurred during construction and as non-designated built heritage assets have a lower sensitivity to change(s) in setting where this contributes to cultural significance (value), changes to setting resulting from operation, routine inspections and maintenance and periods of component replacement are unlikely to result in significant effect(s) to cultural significance (value). Any physical impact(s) will have occurred during construction and, as non-designated built heritage assets have a lower sensitivity to change(s) in setting where this contributes to cultural significance (value) the removal of all above ground equipment and infrastructure, and restoration of land within the Solar Development Site rather than replacement with a different scheme is unlikely to result in significant effect(s) to the cultural significance (value) of affected assets. Therefore, it is unlikely that decommissioning would result in the generation of additional significant effects to those resulting from construction and operation.
	Archaeological heritage assets (C) (Solar Development Site and Grid Connection Cables)	Archaeological heritage assets (O, D) (Solar Development Site and Grid Connection Cables)	Normal operations and periods of component replacement are unlikely to result in significant effects to archaeological heritage assets left in situ following construction of the Proposed Development within the Solar Development Site and the Grid

Section/ Topic	Proposed scope of assessment (C =Construction, O = Operation, D = Decommissioning)	Aspects proposed to be Scoped Out	Rationale for aspects proposed to be Scoped Out
	Unrecorded archaeology (C) (Solar Development Site and Grid Connection Cables)	Unrecorded archaeology (O, D) (Solar Development Site and Grid Connection Cables)	Cable Route Search Area. This is because any impact(s) would be associated with construction, and it is assumed that component replacement is unlikely to require excavation or other below ground works that would result in new/ additional impacts to those that have occurred during construction. It is assumed that no or minimal additional impacts would occur to below ground archaeological heritage assets left in situ during the decommissioning process. It is therefore unlikely that decommissioning would result in significant effect(s) to the cultural significance (value) of archaeological heritage assets. Therefore, it is unlikely that decommissioning would result in the generation of additional significant effects to those resulting from construction and operation. Normal operations and periods of component replacement are unlikely to result in significant effects to unrecorded archaeology left in situ following construction of the Proposed Development. This is because any impact(s) would be associated with construction, and it is assumed that component replacement is unlikely to require excavation or other below ground works. It is assumed that any surviving unrecorded archaeology located within the Solar Development Site and the Grid Cable Route Search Area which was not impacted during construction would not be affected during decommissioning. It is therefore unlikely that decommissioning would result in significant effect(s) to the cultural significance (value) of unrecorded archaeology. Therefore, it is unlikely that decommissioning would result in the generation of additional significant effects to those

Section/ Topic	Proposed scope of assessment (C =Construction, O = Operation, D = Decommissioning)	Aspects proposed to be Scoped Out	Rationale for aspects proposed to be Scoped Out
	Historic Landscape Character (O (Solar Development Site))	Historic Landscape Character (C, O (Grid Connection Cables), D)	resulting from construction and operation of the Proposed Development. There may be temporary changes as a result of, e.g. visual intrusion or noise etc. during construction, but significant effects are unlikely due to the short-term and reversible nature of these changes once construction activities cease. During decommissioning, the removal of all above ground equipment and infrastructure, and restoration of land within the Solar Development Site rather than replacement with a different scheme is unlikely to result in significant effect(s) Therefore, it is unlikely that decommissioning would result in the generation of additional significant effects.
Section 9: Ecology and Biodiversity	Designated Sites (International Statutory Designated Sites within 10km of the Site) – impacts on Rutland Water Scoped In (C, O, D). Designated Sites (National and Local Important Statutory Designated Sites within 2.5km of the Site) (all sites C, O for Solar Development Site and/or Grid Cable Route Search Area as specified in Table 9-6) Ancient woodland and local wildlife sites (C, D)	Impacts on Grimsthorpe SAC, Branack Hills & Holes SAC and Boston Fen SAC Designated Sites (National and Local Important Statutory Designated Sites within 2.5km of the Site) (all sites O) Ancient woodland and local wildlife sites beyond 1km of Site (C, D) Ancient woodland and LWS (O)	No likely significant effects to qualifying natural habitats and habitats of qualifying species given distances from Site and intervening land use - no plausible pathway for impacts considering source/ pathway/ receptor approach. oCEMP will minimise potential for airborne pollutants. No potential for direct or indirect effects, further habitat loss or degradation (beyond that which may have occurred during construction) during operation of the Proposed Development. Ancient woodland and LWS located beyond 1km from the Site have been Scoped Out of further assessment during construction/ decommissioning and all ancient woodland and as they are not connected by continuous woodland or other relevant habitat to the Site and it is considered unlikely that impacts to relevant mobile species such as birds, bats

Section/ Topic	Proposed scope of assessment (C =Construction, O = Operation, D = Decommissioning)	Aspects proposed to be Scoped Out	Rationale for aspects proposed to be Scoped Out
	Ancient woodland and county wildlife sites (C, D) Habitats (arable field margins, hedgerows, standing open water – ponds, deciduous woodland (C, D)) – Solar Development Site Species - Solar Development Site Bats (C, O, D) Amphibians (C, D) Badgers (C, D), Birds (breeding) (C, O, D) Birds (non-breeding) (C, O, D) Birds: Breeding, Non-Breeding and Wintering (C, O, D) Brown hare (C, O, D) Invertebrates (C, D) Invertebrates (C, D) All relevant species and habitats within the Grid Cable Route Search Area remain Scoped In pending desk study/ surveys.	Habitats (arable field margins, hedgerows, standing open water – ponds, deciduous woodland (O)) Solar Development Site Species - Solar Development Site Amphibians (O) Badger (O) Aquatic fauna (C, O, D) Invertebrates (O) Otter (C, O, D) Reptiles (C, O, D) Water vole (C, O, D)	or highly mobile invertebrates would occur beyond this distance. No significant impacts are anticipated from operational activities on these habitats/ sites so both ancient woodland/ LWS have been Scoped Out during operation. No significant impact anticipated on habitats during operation. No significant impact anticipated from operational activities on amphibians or badgers. The scattered ponds found throughout the Solar Development Site are predominantly small and/or ephemeral. As a result, these ponds are unlikely to support notable fish populations or establishment of future populations. Due to the majority of habitats comprising intensive agricultural land, the Solar Development Site is generally unlikely to support protected or notable species of invertebrates. No direct evidence of otter presence, such as spraints, footprints, or feeding remains, was recorded during the field survey. The inundated ditches and small ephemeral water bodies scattered throughout the Solar Development Site offer limited value for otter. Their lack of permanent water, poor connectivity to the main river system, and consequent restricted prey availability make these features less likely to support regular otter activity. As such, it is seen as unlikely

Section/ Topic	Proposed scope of assessment (C =Construction, O = Operation, D = Decommissioning)	Aspects proposed to be Scoped Out	Rationale for aspects proposed to be Scoped Out
			that otter are utilising the Solar Development Site at this time. The Solar Development Site is of limited suitability to support reptiles. The majority of grassland habitat were of relatively short agricultural use and there were limited scrublands and woodland habitat to provide sheltering and foraging habitat. Also notable is the very high density of pheasants across the Solar Development Site . While this does not preclude the presence of reptiles on site, presence of such density pheasants acts as a significant limiting factor, due to predation. No direct field signs of water vole such as feeding stations, latrines, or burrows were recorded during the Solar Development Site walkover. The majority of the Solar Development Site is dominated by intensively managed agricultural land and ephemeral water features, conditions generally unsuitable for sustaining water vole populations. Within the Solar Development Site, suitable conditions are largely limited to a few permanently wet ditches. The intermittent and poorly connected nature of most aquatic features on-site (such as inundated ditches and small, ephemeral water bodies) restricts their value for water voles.
Section 10: Water Environment and Flood Risk	Surface water quality (C, O, D) Surface water quantity (C, O, D) Groundwater quality (C, O, D) Groundwater quantity (C, O, D) Water Dependent Terrestrial Ecosystems	Flood risk (C, O, D)	A standalone FRA would be an appendix to the ES and a brief summary of findings would be provided in the Water Environment ES chapter.
Section 11: Landscape and Visual Amenity	Landscape assessment (C, O, D)	NCA 74: Leicestershire and Nottingham Wolds	A small part of the total NCA 74 area is located within the western part of the study area. It is

Section/ Topic	Proposed scope of assessment (C =Construction, O = Operation, D = Decommissioning)	Aspects proposed to be Scoped Out	Rationale for aspects proposed to be Scoped Out
	National Character Areas (NCA 75: Kesteven Uplands) (C, O, D) District Landscape Character Types (LCT D. Rutland Plateau, LCT E. Wellend Valley) (C, O, D) District Local Character Areas (LCA Di, LCA Dii, LCA Diii, LCA Div, LCA Eii, LCA Kesteven Uplands) (C, O, D) Visual assessment (C, O, D)		unlikely that there would be significant effects based on the large NCA and lack of physical impacts within the NCA.
Section 12: Noise and Vibration	Noise from road traffic (C, D)	Noise from road traffic (O)	Operational traffic noise, including during routine servicing and maintenance, is unlikely to result in a significant effect, as the anticipated increase in flows associated with the Proposed Development is expected to be minimal. During the replacement of solar PV modules and batteries there would be more traffic than during routine inspection and maintenance activities but no more than would be required during construction.
	Vibration from road traffic (C)	Vibration from road traffic (C, O, D)	Construction (use of haul roads), operational (including during replacement activities) and decommissioning traffic vibration would be minimal in terms of impacts on people and risk of damage to any buildings or other structures and is proposed to be Scoped Out .
	Noise from Proposed Development activities (C, O (Solar Development Site), D)	Noise from Proposed Development activities (O (Grid Cable Route Search Area))	No operational noise is expected along the cable in the Grid Cable Route Search Area. Operational vibration is proposed to be Scoped Out of the assessment since the nature of the plant is unlikely to transmit any appreciable vibration into the

Section/ Topic	Proposed scope of assessment (C =Construction, O = Operation, D = Decommissioning)	Aspects proposed to be Scoped Out	Rationale for aspects proposed to be Scoped Out
	Vibration from Proposed Development activities (C, D)	Vibration from Proposed Development activities (O)	ground and the distances to any sensitive receptors will attenuate any residual vibration.
Section 13: Socio-Economics	Employment skills and training opportunities (including Supply chain) (C, O, D)	Land Use – potential indirect effects on local businesses, community and recreational facilities (C, O, D)	Effects on local businesses, community and recreational facilities are expected to not be significant given the management plans that the Applicant is committed to.
		Land Use – Development land – site allocations and MSA (C, O, D)	No direct effects are anticipated on development allocations and the Proposed Development would not sterilise mineral resources, with no known/ current extraction licenses within the Site. A Minerals Assessment will accompany the Application.
	Users of PRoW and other promoted recreational routes (C, D)	Users of PRoW and other promoted recreational routes (O)	Potential effects on access to PRoW and recreational routes would be experienced and assessed for the construction/ decommissioning phases. It is proposed that these are Scoped Out for the operation phase although the ES will acknowledge any temporal duration of effects that continue into the operational phase, where this is appropriate.
		Effect on tourism attractions/ facilities (C, O, D)	Given the lack of tourist sites in the vicinity, the Proposed Development is not expected to result in significant effects on tourism.
		Effect on accommodation (C, O, D)	It is not considered that there would be any impact to tourism accommodation during all phases of the Proposed Development, linked to the relatively small numbers of workforce required at peak that would need to stay locally.

Section/ Topic	Proposed scope of assessment (C =Construction, O = Operation, D = Decommissioning)	Aspects proposed to be Scoped Out	Rationale for aspects proposed to be Scoped Out
		All other socio-economic effects related to the local population (amenity effects) (C, O, D)	Any wider effects on the local population (amenity effects) would be assessed in other technical chapters.
Section 14: Transport and Access	Severance (C) Delay (C) Non-motorised user amenity (C) Fear and intimidation (C) Road user safety (C)	Severance (O, D) Delay (O, D) Non-motorised user amenity (O, D) Fear and intimidation (O, D) Road user safety (O, D) Hazardous loads (C, O, D)	Operational traffic is expected to be minimal, with a small number of operational staff and occasional routine maintenance visits. The majority of these trips will be by cars or vans. Therefore, it is expected that any operational impacts on traffic and transport will be minimal. The effects of maintenance and replacement activities would be controlled and managed through appropriate management plans and by the Requirements of the draft DCO. The Proposed Development is not expected to result in changes which could significantly affect accidents and safety during the operation or decommissioning phase. Road safety will be considered in the TA and reported as an appendix of the ES. The Proposed Development is not expected to generate or attract hazardous loads at any stage. It is anticipated that AIL would be required to enable construction of the Proposed Development and the TA would confirm the number and suggested routing of these movements. Decommissioning of the Proposed Development could give rise to similar (or lower) levels of forecast trip generation as the construction phase; therefore, the construction assessment provides a worst-case scenario for potential effects. Management and mitigation measures will be incorporated into the outline DEMP, which will set out the general principles to be followed in the decommissioning of the Proposed Development, including in respect of traffic management measures.

Section/ Topic	Proposed scope of assessment (C =Construction, O = Operation, D = Decommissioning)	Aspects proposed to be Scoped Out	Rationale for aspects proposed to be Scoped Out
Section 15: Agriculture and Soils	Agricultural land (C, D)	Agricultural land (O)	The removal of land from agricultural production occurs as a consequence of the construction rather than operation of the Proposed Development.
	Agricultural holdings (C)	Agricultural holdings (O, D)	Potential impacts on the viability of tenanted farm holdings to be assessed. The landowners are willing participants in the Proposed Development and will already have assessed the impact on their farm businesses. The effects of the Grid Connection Cables on other farm holdings will involve short-term, temporary occupation of land to install the cables (at a depth that the land could still be harvested/ploughed) before being handed back to the landowner and can be Scoped Out for further assessment.
	Soil resource (C, O, D)		
Section 16: Other Env Topics			
Air Quality	Dust emissions (C, D)	Dust emissions (O)	Due to the nature of the Proposed Development, no adverse dust effects are anticipated during operation, this has been Scoped Out of further assessment.
		Vehicle emissions (C, O, D)	Construction, operational and decommissioning traffic are expected to be below the threshold.
Glint and Glare	N/A	Glint and glare (C, O, D)	A separate assessment will be conducted and appended to the ES and mitigation measures implemented. Therefore, a glint and glare chapter is not considered be required as part of the ES. The assessment will be summarised in the 'Other Environmental Topics' Section and taken into account in the LVIA.
Ground Conditions	N/A	Geology (C, O, D)	A PRA will be undertaken and will be appended to the ES and summarised within the Other Environmental Topics chapter of the ES. This report

Section/ Topic	Proposed scope of assessment (C =Construction, O = Operation, D = Decommissioning)	Aspects proposed to be Scoped Out	Rationale for aspects proposed to be Scoped Out
		Land contamination (C, O, D)	will identify sensitive geological receptors, for example SSSI. The PRA will include a conceptual site model and qualitative risk assessment.
		Mineral resources (C, O, D)	A Minerals Assessment will be undertaken and will be appended to the Planning Statement that accompanies the Application and referred to in the ES.
Human Health	N/A	Environmental impacts (C, O, D)	Environmental impacts on sensitive receptors will be assessed in the relevant topic assessment chapters. These assessments include consideration of risks to human health at individual sensitive receptors. The scale of impacts, taking into account embedded and good practice mitigation measures, are not considered to result in any potential impacts on health outcomes at the population level.
		Traffic (C, O, D)	The proximity to the A road network will reduce the risk of impacts on wellbeing and quality of life associated with increased traffic flows and HGV. Design and control measures outlined in Section 14: Transport and Access will mitigate disruption and annoyance associated with construction, operational and decommissioning traffic.
		Green space and physical activity (C, O, D)	There are no potential health effects associated with reduced access to open land and green space (including its links to physical activity) during construction, operation or decommissioning (See Section 13: Socio-economics).
		Access and connectivity (C, O, D)	Due to proximity to A roads, it is unlikely that accesses and connectivity to community services and

Section/ Topic	Proposed scope of assessment (C =Construction, O = Operation, D = Decommissioning)	Aspects proposed to be Scoped Out	Rationale for aspects proposed to be Scoped Out
		Economic and employment impacts (C, O, D)	facilities will be impacted by road congestion or increased journey time during construction. During operation, no significant additional traffic is anticipated. The jobs created not as part of the Proposed Development is not considered likely to affect the overall health and wellbeing of communities in the study area. Economics and employment effects will be considered in Chapter 13: Socio-economics
Major Accidents or Disasters	N/A	Major accidents and disasters (C, O, D)	The Proposed Development is not considered to have high vulnerability to major accidents or disasters. The risks of major accidents or disasters will be managed under established legislation requirements, the design process and within other environmental assessments.
Telecommunications, Television Reception and Utilities	N/A	Telecommunications, television reception and utilities (C, O, D)	Due to the design, avoidance and mitigation measures proposed, no significant effects on utilities are anticipated.
Electromagnetic Field (EMF)	N/A	Electromagnetic fields (C, O, D)	Due to the design, avoidance and mitigation measures proposed, no significant effects on EMF receptors are anticipated. An impact risk assessment on the risks associated with magnetic fields on fish and a monitoring plan will accompany the Application where any below ground electric cables present a risk to fish.
Materials and Waste	N/A	Materials and waste (C, O, D)	All the electrical infrastructure would be manufactured offsite and delivered ready for installation. Materials and waste generation during the operational phase would be minimal, including maintenance and replacement of proposed infrastructure. If largescale replacement of panels during operation is to happen, all replaced solar infrastructure would be re-used or

Section/ Topic	Proposed scope of assessment (C =Construction, O = Operation, D = Decommissioning)	Aspects proposed to be Scoped Out	Rationale for aspects proposed to be Scoped Out
			recycled if possible or disposed of appropriately under the WEEE Regs. Manufacturers of solar panels are legally required to take back old panels, under the WEEE directive. The decommissioning of the Proposed Development would involve the removal of all solar infrastructure, with the exception of the cabling which will remain in-situ, and reinstatement of the land to its original use as far as practicable, with the exception of areas of enhancement planting which would be retained.
Section 17: Cumulative and In-combination effects	(C) Cumulative and in-combination effects as a result of construction of the Proposed Development for all receptors unless otherwise stated in this table.	GHG	In line with IEMA guidance (2022) ⁶³ , a cumulative assessment of a specified list of developments for GHG emissions is not considered appropriate or meaningful ²¹ in terms of assessing the Proposed Development's impact on the receptor of the global climate. On this basis, cumulative impacts associated with other planned or consented development unconnected and unrelated to the Proposed Development will not be included in a cumulative assessment of impact – these other projects are Scoped Out of the cumulative assessment.
	(O) Cumulative and in-combination effects as a result of operation of the Proposed Development for all receptors unless otherwise stated in this table.	As above for GHG	As above for GHG
	(D) Cumulative and in-combination effects as a result of	As above for GHG	As above for GHG

²¹ IEMA 2022 Guidance states *All global cumulative GHG sources are relevant to the effect on climate change, and this should be taken into account in defining the receptor (the atmospheric concentration of GHGs) as being of 'high' sensitivity to further emissions... Effects of GHG emissions from specific cumulative projects therefore in general should not be individually assessed, as there is no basis for selecting any particular (or more than one) cumulative project that has GHG emissions for assessment over any other.*

Section/ Topic	Proposed scope of assessment (C =Construction, O = Operation, D = Decommissioning)	Aspects proposed to be Scoped Out	Rationale for aspects proposed to be Scoped Out
	decommissioning for all receptors unless otherwise stated in this table.	Cumulative effects with ‘other projects’ as a result of decommissioning.	As the Proposed Development will be consented to operate for 60 years, cumulative effects of decommissioning are not proposed to be considered as it is not possible to predict the developments that would be in progress at the point in time when decommissioning occurs.

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Executive Summary

Ove Arup & Partners Ltd (Arup) was commissioned by Kilnside Energy Park Limited ('the Applicant') to conduct a Preliminary Ecological Appraisal (PEA) for the Kilnside Energy Park ('Proposed Development'). The Proposed Development consists of a solar farm including solar photovoltaic (PV) generating panels and on-site energy storage facilities ('Solar Development Site') which will include works to facilitate access to the Proposed Development ('Highway Works') at a site near Great Casterton in Rutland. The Solar Development Site and Grid Cable Route Search Area together with other areas required for access and ancillary infrastructure are referred to in this PEA as 'the Site'. This PEA accompanies and should be read in conjunction with **Section 9: Ecology and Biodiversity** of the EIA Scoping Report.

An initial desk study was undertaken in February 2025, to inform the EIA Scoping stage and scope of field surveys for the Solar Development Site. The aims of the desk study were to:

- identify Habitat Sites (formerly known as International or European Sites), Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR) within 10 km of the Solar Development Site and Site;
- identify protected and notable habitats and species and other statutory designated sites within 2.5 km of the Solar Development Site and Site;
- identify non-statutory nature designations (e.g. Local Wildlife Sites (LWS)) and protected and notable species records within 2km of the Solar Development Site; and
- review the habitats making up areas of the Site not subject to survey using available aerial imagery.

Land within the Solar Development Site primarily comprises agricultural land used for mixed crops and gamebird rearing, interspersed with hedgerows, mature trees, and scattered ponds. Based on available aerial imagery for land within the Site, beyond the Solar Development Site, the majority of the Grid Cable Route Search Area also comprises agricultural land, interspersed with hedgerows, rivers, standing water/ ponds, arable field margins and pockets of lowland mixed deciduous woodland.

The desk study identified four internationally important statutory sites, a number of nationally important statutory sites, and additional non-statutory sites within the study area for the Site. Consequently, Habitats Regulations Assessment (HRA) screening assessment will be undertaken to determine whether the Proposed Development will have any Likely Significant Effects (LSE) on the qualifying features of relevant statutory designated sites.

The Solar Development Site has the potential to support numerous notable and protected flora and fauna, including scarce plants, veteran trees, breeding and wintering birds, bats, badger, brown hare, otter, water vole, great crested newt, fish (including European eel) and Invasive Non-Native Species. Many of the habitats and species identified have the potential to be impacted by the Proposed Development, primarily through change of land use leading to loss of habitat and foraging resource, as well as potential impacts of disturbance during construction, and hydrological changes. Based on the findings of the PEA, a suite of protected species surveys has been identified as required to inform the Environmental Statement (ES). The survey programme is currently ongoing. Further surveys may be required depending on the potential for impacts under different evolving design scenarios.

Further field surveys identified within this PEA reflect the Solar Development Site only. As the design of the Proposed Development evolves and the Grid Cable Route Search Area is further defined, the existing desk study will be updated, and subsequent targeted field surveys will be undertaken to determine the baseline conditions for protected and notable species within the Grid Cable Route Search Area.

Ecological avoidance, mitigation and enhancement will be embedded as part of the design in order to meet legislative and policy requirements for relevant protected sites, habitats and species. Such actions would seek to maintain and further improve the condition of important ecological features identified within the Solar

Development Site with the potential to benefit the wider landscape and green infrastructure in its surroundings, contributing towards the objectives of the Leicester, Leicestershire and Rutland Biodiversity Action Plan.

1. Introduction

1.1 Site and Proposed Development background

- 1.1.1.1 Arup was commissioned by Kilnside Energy Park Limited ('the Applicant') to conduct a Preliminary Ecological Appraisal (PEA) for the Kilnside Energy Park (the 'Proposed Development') situated north of Great Casterton, a village in Rutland, close to Stamford.
- 1.1.1.2 The Proposed Development consists of a solar farm including solar photovoltaic (PV) generating panels and on-site energy storage facilities ('Solar Development Site') which will include works to facilitate access to the Proposed Development ('Highway Works') at a site near Great Casterton in Rutland within the administrative boundary of Rutland County Council (RCC), together with land for electrical grid connection route options ('Grid Cable Route Search Area') which includes land within the administrative boundaries of South Kesteven District Council (SKDC) and Lincolnshire County Council (LCC). In the context of the Proposed Development, the Solar Development Site and Grid Cable Route Search Area along with other areas required for access and ancillary infrastructure (Figure 1-1) are collectively referred to as 'the Site'.

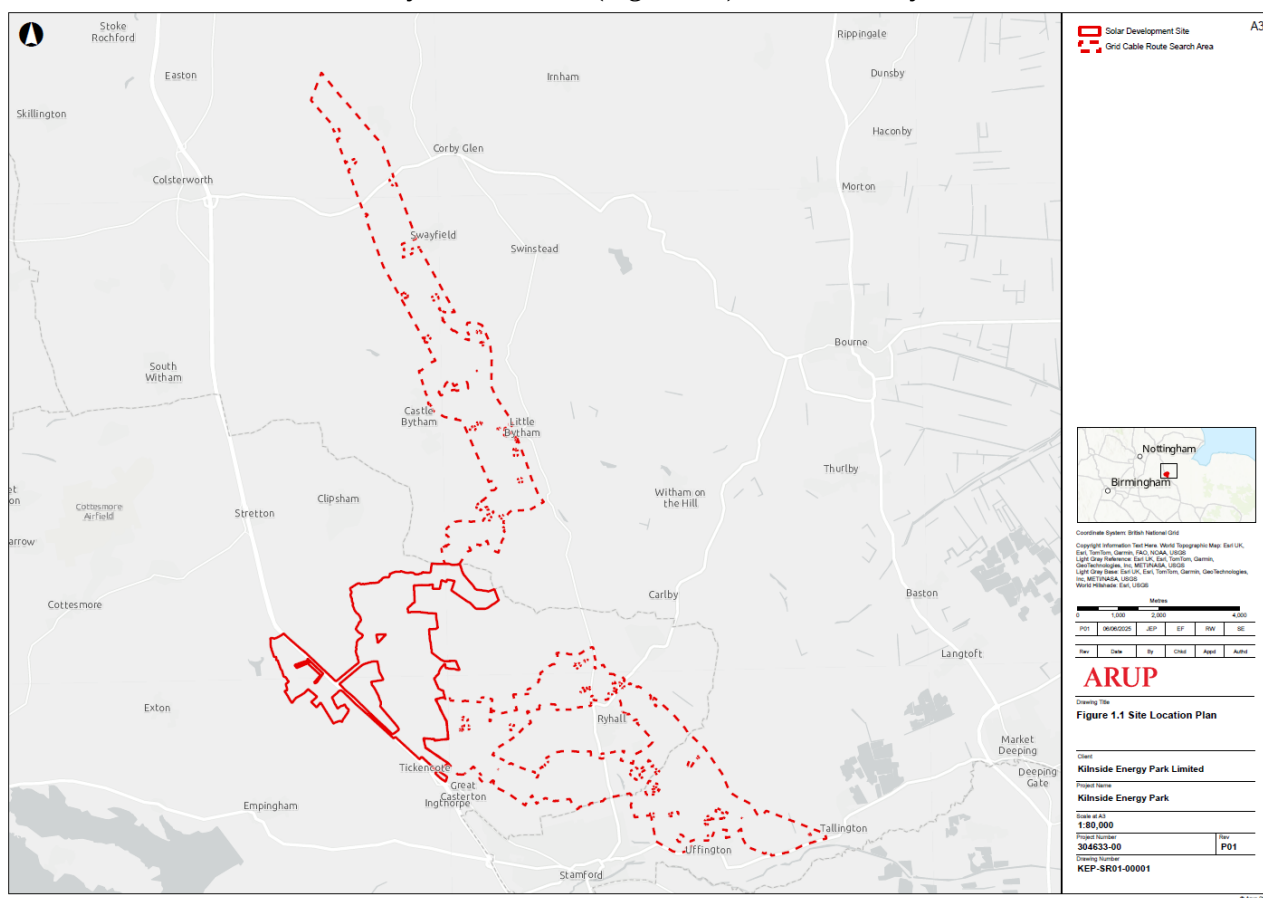


Figure 1-1: The Solar Development Site and Grid Cable Route Search Areas

- 1.1.1.3 The principal infrastructure of the Proposed Development is expected to comprise:

- solar PV panels;
- module mounting structure;
- field station (housing inverters, transformers and switch gear);
- HV switchgear and control equipment (housed inside a building);
- a battery energy storage facility (BESS);
- on-site electrical compounds comprising of substations and control buildings;

- on-site cabling (cabling within the Solar Development Site – to connect up solar PV areas with the On-Site Substation(s));
- grid connection - an underground cable to export the electricity to a connection point (substation) on the existing nearby 400kV transmission line. However, at present, the connection point (substation) is unknown, and therefore a number of options ('Grid Cable Route Search Area') are currently under consideration to connect into a newly proposed National Grid substation (to be built) or existing substation that may be expanded by National Grid) along the 400kV transmission line to the east of the Site;
- a spare parts storage area or enclosure;
- fencing and security measures;
- access tracks; and
- landscaping and biodiversity enhancement.

1.1.1.4 Further information on the Proposed Development is provided in **Section 2: Description of the Proposed Development** and definitions for **Project Elements** are set out the glossary of this EIA Scoping Report.

1.2 Ecological context and proposed design

1.2.1.1 The Solar Development Site is situated within a rural, agricultural landscape, with surrounding mosaics of fields, hedgerow and scattered trees. The majority of land across the Solar Development Site is under non-cereal crop production with grassland margins, as well as some associated drainage ditches. Defined woodland copses are present both within the Solar Development Site and immediately surrounding, including several woodlands of ancient origin. The A1 Great North Road divides the Solar Development Site.

1.2.1.2 At this stage in the development process, specific information regarding the planned solar farm and associated infrastructure is limited. **Section 2: Site Description and the Proposed Development** explains the nature of infrastructure proposed including the installation of solar panel arrays, mounting structures, piles, inverters, transformers, and cables, as well as a BESS containing battery modules and a storage enclosure, and associated management technology. It is assumed that whilst there will be areas of hard infrastructure created, as described, there will be the opportunity to restore areas beneath solar cells to grassland, as well as to enhance other areas of retained habitat not impacted by the Proposed Development. As noted in **Section 15: Agriculture and Soils** of the EIA Scoping Report, subject to demand and balancing the requirements of biodiversity net gain (BNG), it is assumed that agricultural uses including sheep grazing may resume within the Solar Development Site once construction is complete, other than in the areas proposed for associated infrastructure, including the proposed On-Site Substation(s), the BESS and access tracks.

1.3 Site sectioning

1.3.1.1 For the purposes of reporting in this PEA, the Solar Development Site has been split up into parcels as shown in Figure 1-2.

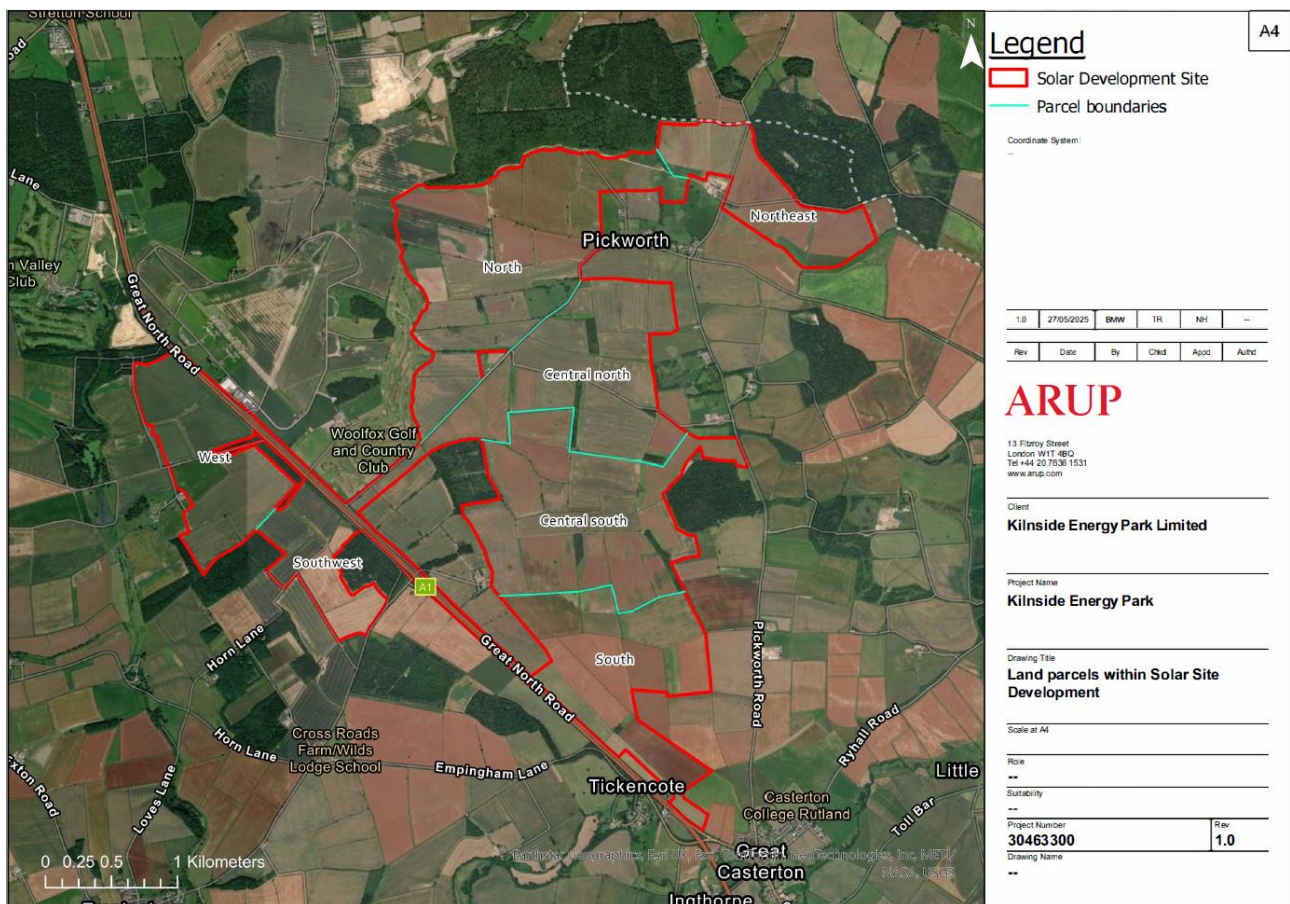


Figure 1-2: Sectioning of the Solar Development Site for the purposes of describing areas in this PEA

1.4 Scope of report

1.4.1.1 The objectives of this PEA report are to:

- identify known and potential ecological constraints to the Proposed Development;
- enable any further ecological surveys to be identified and appropriately designed;
- inform master planning to allow potentially significant ecological effects to be avoided or minimised wherever possible (following the ‘Mitigation Hierarchy’);
- inform design principles for mitigation, compensation, and ecological enhancement measures and opportunities, to be refined on basis of further ecological surveys; and
- provide a habitat baseline compatible for use in BNG calculations informed by design.

1.4.1.2 This report has been prepared with reference to current guidelines for Preliminary Ecological Appraisal (PEA)¹ and in accordance with BS42020:2013: Biodiversity - Code of Practice for Planning and Development².

1.4.1.3 The field survey and detailed desk study undertaken to inform this PEA is limited to Solar Development Site area only. However, distances to international and national statutory designated sites have been measured from the Solar Development Site and Site respectively.

2. Planning policy, legislation and guidance

2.1 Planning policy

- 2.1.1.1 The following national planning policies are relevant to assessing the impacts of the Proposed Development upon nature conservation:
- Overarching National Policy Statement (NPS) for Energy (EN-1)³;
 - Draft NPS for Energy (EN-1) (2025)⁴;
 - NPS for Renewable Energy Infrastructure (EN-3)⁵
 - Draft NPS for Renewable Energy Infrastructure (EN-3) (2025)⁶;
 - NPS for Electricity Networks Infrastructure (EN-5)⁷; and
 - Draft NPS for Electricity Networks Infrastructure (EN-5) (2025)⁸.
- 2.1.1.2 These NPS set out the Government's policies regarding the development of nationally significant infrastructure projects (NSIP), identify the need for new infrastructure, and offer direction on how Development Consent Order (DCO) applications for solar projects should be evaluated. They also outline the specific assessment criteria and guidelines applicants must address when considering project impacts, as well as how the Secretary of State should assess these impacts (and any mitigation measures) in determining DCO applications.

2.2 Legislation

2.2.1 Environment Act 2021

- 2.2.1.1 The Environment Act 2021⁹ introduces the requirement for NSIP (consented under the Planning Act 2008¹⁰) to deliver a mandatory minimum 10% BNG. Although the precise implementation date for NSIP is subject to secondary legislation, the UK Government announced¹ in May 2025 that it anticipates introducing BNG for NSIP from May 2026.
- 2.2.1.2 The Statutory Biodiversity Metric¹¹ (SBM) has been developed by Defra and Natural England to provide a tool to quantify changes in biodiversity value (losses or gains) during development and through any changes in land management.
- 2.2.1.3 The Environment Act 2021 also stipulates the requirement for Local Nature Recovery Strategies (LNRS) to be developed by 48 'Responsible Authorities' over set geographical areas determined by the Secretary of State², to be in place by March 2025¹². LNRS must include:
- a statement of biodiversity priorities for the strategy area; and,
 - a local habitat map for the whole strategy area or two or more local habitat maps which together cover the whole strategy area.
- 2.2.1.4 A draft LNRS 'Making Space for Nature' for Leicestershire, Leicester and Rutland was published by Leicestershire County Council (LeCC)¹³ in January 2025 and covers the Solar Development Site area. LCC is the Responsible Authority for Greater Lincolnshire LNRS (in which part of the Site is located). No draft LNRS is currently available for Greater Lincolnshire.

¹ HM Government Open Consultation on Biodiversity Net Gain for Nationally Significant Infrastructure projects. Available at: <https://www.gov.uk/government/consultations/biodiversity-net-gain-for-nationally-significant-infrastructure-projects>

² Map of Local Nature Recovery Strategy Areas and Responsible Authorities. Available at: https://assets.publishing.service.gov.uk/media/682c484a5ba51be7c0f452ca/Map_of_local_nature_recovery_strategy_areas_and_responsible_authorities.pdf

2.2.2 Habitats and Species of Principal Importance

- 2.2.2.1 Habitats of Principal Importance (HPI) and Species of Principal Importance (SPI) for the conservation of biodiversity in England are listed under the provisions of Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006¹⁴. These include all the habitats and species in England that were identified as requiring action in the now succeeded UK Biodiversity Action Plan (UKBAP)¹⁵, which continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework.
- 2.2.2.2 Section 40 of the NERC Act 2006 places a duty on all local authorities to have regard to the conservation and enhancement of biodiversity within their decision making, particularly with reference to those habitats and species listed within Section 41 of the Act.

2.2.3 Hedgerows

- 2.2.3.1 The Hedgerows Regulations 1997¹⁶ set out criteria for local planning authorities to assess whether hedgerows are considered to be ‘important’ for their historical, archaeological, landscape or wildlife value. An ‘important’ hedge can only be removed under planning permission, or by a specific Hedgerow Removal Notice to be issued by the Local Authority. The assessment within this report is limited to assessing the importance of hedgerows on the basis of the wildlife criteria of the Regulations.
- 2.2.3.2 The Management of Hedgerows (England) Regulations 2024¹⁷ enforce the requirement of a 2-metre buffer strip around hedgerows free from cultivation, pesticides and fertilisers, and implement a cutting ban, whereby hedgerow cutting is prohibited from 1 March to 31 August, to protect nesting birds.

2.2.4 Protected Species

Bats

- 2.2.4.1 Bats *myotis* are European Protected Species, protected under Schedule 2 of The Conservation of Habitats and Species Regulations 2017¹⁸ as amended. This makes it an offence to deliberately capture, injure or kill bats; deliberately disturb bats; or damage or destroy a breeding site or resting place used by bats. Bats are also protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb an animal in such a place.
- 2.2.4.2 Bats are also SPI pursuant to Section 41 of the NERC Act 2006.

Otter

- 2.2.4.3 Otter *Lutra lutra* is listed on Schedule 2 of The Conservation of Habitats and Species Regulations 2017 and on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended)¹⁴ which prohibits the intentional, deliberate or reckless:
- killing, injuring, taking of otter;
 - disturbing otter in a place of shelter or protection; and
 - damaging, destroying or obstructing any place used by otter for the purposes of breeding, sheltering or protection.
- 2.2.4.4 The otter is also a SPI pursuant to Section 41 of the NERC Act 2006.

Amphibians including Great crested newt

- 2.2.4.5 Great crested newt *Triturus cristatus* is afforded protection through the provisions of the Wildlife and Countryside Act 1981 (as amended)¹⁴, the Countryside and Rights of Way (CROW) Act 2000²⁰ and The Conservation of Habitats and Species Regulations 2017. As such, without a licence from Natural England, it is an offence to:

- kill, injure or capture a great crested newt;
- damage, destroy or obstruct access to any breeding site or resting place of a great crested newt; or
- disturb a great crested newt while it is occupying a structure or place that it uses for shelter or protection.

2.2.4.6 The legislation applies to all stages of the life cycle including eggs, larvae, juveniles and adults.

2.2.4.7 The great crested newt is also a SPI pursuant to Section 41 of the NERC Act 2006, as are Common Toad *Bufo bufo*, Natterjack Toad *Epidalea calamita*, and Pool Frog *Pelophylax lessonae*.

Reptile

2.2.4.8 All native UK reptile species are protected against killing and injury under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended)¹⁴. This legislation makes it illegal to intentionally kill or injure a reptile.

Hazel Dormouse

2.2.4.9 Dormouse is protected under the Wildlife and Countryside Act 1981 (as amended) and hazel dormouse *Muscardinus avellanarius* is a European Protected Species under the Conservation of Habitats and Species Regulations 2017 (as amended). Such legislation affords protection to individuals of the species and their breeding sites and places. Dormouse is also a S41 SPI.

2.2.5 Water vole

2.2.5.1 Water vole *Arvicola amphibius* is listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended)¹⁴ which prohibits the intentional, deliberate or reckless:

- killing, injuring, taking of water vole;
- disturbing water vole in a place of shelter or protection; and
- damaging, destroying or obstructing any place used by water vole for the purposes of breeding, sheltering or protection.

2.2.5.2 The water vole is also a SPI pursuant to Section 41 of the NERC Act 2006.

2.2.6 Badgers

2.2.6.1 The Protection of Badgers Act 1992¹⁹ makes it an offence (in the absence of a derogation licence) to:

- kill injure or take a badger *Meles meles*;
- damage or interfere with a sett; or
- disturb a badger when it is occupying a sett.

2.2.7 Birds

2.2.7.1 Wild birds, their nests and their eggs are afforded legal protection through provisions in the Wildlife and Countryside Act 1981 (as amended)¹⁴ and the Countryside and Rights of Way (CROW) Act 2000²⁰. It is an offence, with certain exceptions, to intentionally or recklessly:

- kill, injure or take any wild bird;
- take, damage or destroy the nest of any wild bird while it is in use or being built; or
- take or destroy the egg of any wild bird.

2.2.7.2 Those species that are listed on Schedule 1 of the Act, are subject to further protection making it also illegal to disturb parent birds intentionally or recklessly while they are nesting, or their dependent young.

2.2.7.3 Several species of bird are SPI pursuant to Section 41 of the NERC Act 2006.

2.2.8 European eel

2.2.8.1 European Eel *Anguila anguila* is a SPI in England under Section 41 of the NERC Act 2006¹⁴ and is a priority species in the UK BAP. It is also listed on the International Union for Conservation of Nature (IUCN) Red List²¹ as a critically endangered species.

2.2.8.2 The Eels (England and Wales) Regulations (2009)²² require construction of potential barriers to migration to be assessed, with appropriate mitigation to be developed where development will act as a barrier to migration.

2.2.9 Salmonids

2.2.9.1 The Salmon and Freshwater Fisheries Act 1975 (SAFFA)²³ is legislation that aims to protect freshwater fish, with a particularly strong focus on salmon *Salmo salar*, and trout *Salmo trutta*. The legislation covers a broad range of topics, but of particular relevance to development are those sections covering water pollution, habitat disturbance and fish migration routes.

2.2.9.2 Under Section 2 (4) it is an offence to wilfully disturb spawn, spawning fish or spawning areas. Under Section 4 (1) it is an offence to knowingly permit the flow of poisonous matter and polluting effluents into river courses that are poisonous or injurious to fish or the spawning grounds, spawn or food of fish.

2.2.9.3 Sections 9 to 15 are concerned with fish passage and migration routes. It is the duty of the waterway owner to provide and maintain a facilitating fish pass for migrating salmon or trout when constructing dams, screens or sluices. Section 9 allows the regulator to serve notice on the owner or occupier of a dam or obstruction, to install a fish pass where necessary. This section applies to dams which are either new or have been altered to create an increased obstacle to the passage of migratory salmonids. It is also applicable where dams in a state of disrepair are rebuilt over at least one half of their length.

2.2.10 Invasive non-native species

2.2.10.1 Invasive non-native species (INNS) in the UK are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended)¹⁴, or Schedule 2 of the Invasive Alien Species (Enforcement and Permitting) Order 2019²⁴.

2.2.10.2 Listing of Schedule 9 of the Wildlife and Countryside Act 1981 (as amended)¹⁴, makes it an offence to:

- plant or otherwise cause to grow in the wild any plant which is included in Part II of Schedule 9; or
- release or allow to escape into the wild any animal which is not normally resident in and is not a regular visitor to Great Britain in a wild state, or which is listed in Part I of Schedule 9.

2.3 Guidance

2.3.1 Leicestershire and Rutland Biodiversity Action Plan (BAP)

2.3.1.1 Leicestershire and Rutland BAP²⁵ sets local priorities for the protection and recovery of nature to be adopted into relevant local policy and plans. The action plan focuses on habitats and species of particular local importance. It comprises of a list of 19 priority habitats and 16 priority species.

2.3.1.2 The habitats and species listed in the BAP that are relevant to this assessment include:

Priority habitats:

- Broadleaved woodland;
- Wet woodland;
- Lowland wood-pasture and parkland;
- Mature trees;
- Hedgerows;
- Eutrophic standing water;
- Sphagnum ponds;
- Neutral grassland;
- Field margins;
- Calcareous grassland; and
- Heath-grassland.

Priority species:

- Barn owl *Tyto alba*;
- Bats *Vespertilionidae*;
- Black hairstreak butterfly *Satyrrium pruni*;
- Dingy skipper butterfly, *Erynnis tages*;
- Grizzled skipper butterfly *Prygus malvae*;
- Hazel dormouse;
- Nightingale *Luscinia megarhynchos*;
- Otter; and
- Redstart *Phoenicurus phoenicurus*.

3. Methodology

3.1 Study Area

3.1.1.1 The study area for this PEA includes the Solar Development Site and the following areas:

- international nature conservation sites (Ramsar, Special Protection Areas (SPA), Special Areas of Conservation (SAC)) within 10km;
- national statutory designated sites (e.g. Sites of Special Scientific Interest (SSSI)) within 2.5km;
- locally important statutory designated sites (e.g. Local Nature Reserves (LNR)) within 2.5km; and
- non-statutory nature designations (e.g. Local Wildlife Sites (LWS)) and protected and notable species record within 2km of the Solar Development Site.

3.1.1.2 The following sections detail the methodology for undertaking this PEA.

3.2 Desk study

3.2.1.1 A detailed desk study was conducted on the Solar Development Site to provide an indication of the habitat types likely to occur within it and on adjacent land, and the ecological connectivity of the Proposed Development, as well as to assess historical habitats and uses. A detailed desk study has not yet been conducted for the Grid Cable Route Search Area; however, distances from international and national statutory sites and have been identified for the Grid Cable Route Search Area.

3.2.1.2 This desk study was used to provide context for the assessment of whether the Proposed Development is likely to support habitats and species of conservation concern and/ or subject to the provisions of legislation.

3.2.1.3 Information regarding relevant biodiversity receptors was gained for this search area using a variety of open-source data on an iterative basis; commencing in October 2024, with updates in December 2024 and May 2025 to cover changes to the Site and study area. Information gathered included:

- MAGiC platform²⁶ - internationally designated statutory sites (SPA, SAC and Ramsar sites) and nationally designated statutory sites (SSSI, LNR, National Nature Reserves (NNR), and Marine Conservation Zones (MCZ)) and HPI;
- side by side georeferenced maps viewer²⁷ - comparison of historic and current maps in side-by-side viewer;
- Ancient Woodland Inventory (AWI)²⁸ - ancient woodland sites and their historic land use (semi-natural, replanted);
- Ancient Tree Inventory (ATI)²⁹ - mapped ancient, veteran and notable trees;
- Priority Rivers Map³⁰ - priority river sites in England;
- National Biodiversity Network (NBN) Atlas³¹ - supplementary species information; and
- Local environmental records.

3.2.1.4 Information regarding non-statutory designated nature conservation sites e.g. LWS, as well as relevant protected and/ or notable species records for the defined search area, were obtained from the Leicestershire and Rutland Environmental Records Centre (LRERC)³² and provided to Arup in December 2024. Records older than 10 years are broadly considered to be of limited relevance and are not summarised in this report, unless otherwise stated; professional judgement has been used to identify where records older than 10 years are likely to still be of relevance.

3.3 Field survey

3.3.1 Survey methodology

- 3.3.1.1 A habitat mapping and protected/ notable fauna scoping assessment was conducted for all land falling within the Solar Development Site by appropriately experienced Arup ecologists. The Solar Development Site was surveyed across three separate survey efforts (refer to Table 1 and Figure 1-2) reflecting the evolution of land required for the Proposed Development being identified by the Applicant and status of landowner agreements for survey at this EIA Scoping stage.

Table 1: Solar Development Site Field Surveys

Survey No.	Survey Dates	Parcels Surveyed
1	17th - 18th October 2024 22nd - 23rd October 2024	North, central north, central south, south.
2	2nd - 3rd December 2024 10th - 11th December 2024	West
3	19 th – 20 th May 2025	North-east and south-west

- 3.3.1.2 No field surveys have been conducted to date on the Grid Cable Route Search Area.
- 3.3.1.3 Habitats were classified using the UK Habitats Classification (UKHab) methodology³³. The UKHab system, which is listed as good practice guidance by Chartered Institute for Ecology and Environmental Management (CIEEM)³⁴, is based on a hierarchical system suitable for use in terrestrial, freshwater and coastal areas of the UK. The system comprises a principal hierarchy (the primary habitats) - which include ecosystems, broad habitats, priority habitats and habitats listed under Annex 1 of the Habitats Directive³⁵, as well as non-hierarchical secondary codes. Habitat definitions are given in the UK Habitat Classification - Habitat Definitions³³.
- 3.3.1.4 The UKHab classification system provides the basis for habitat types within the SBM³⁶ to be utilised for BNG assessment of the Proposed Development. Condition scoring of habitats for BNG was undertaken concurrently with UKHab classification using standardised condition scoring criteria³⁷. Condition is a measure of the current status and functionality of a defined area of habitat, resulting from environmental and anthropogenic factors, such as management, and is not a reflection of the intrinsic biodiversity value of the habitat.
- 3.3.1.5 Whilst individual trees are not generally recorded as part of the UKHab system, where not forming part of a wider habitat type, individual trees are an important element of BNG. Consequently, where individual trees were identified within the Solar Development Site, these were mapped with details recorded on species, position in a rural or urban environment, as well as broad size and condition (criteria required for the SBM).
- 3.3.1.6 The Vascular Plant Red List for England (Stroh *et al.*, 2014)³⁸ was used to determine which species identified during field surveys were of particular conservation concern at a national level.
- 3.3.1.7 The scoping assessment for fauna aimed to identify the presence of protected and/ or notable species within the Solar Development Site and the surrounding environment, or the presence of habitats with the potential to support them. The scoping assessment is used to inform recommendations for further specific surveys within this report, where required.

3.4 Assumptions and limitations

3.4.1 Survey information

3.4.1.1 Reasonable efforts have been made to evaluate and describe the Solar Development Site and there were no significant limitations to the field survey; however, the following specific limitations apply to this appraisal:

- the findings presented in this PEA represent those at the time of the survey. Results are highly dependent on factors such as seasonal conditions and any changes to the land use of surrounding areas;
- owing to the addition of new land being included in the Solar Development Site, the field surveys were undertaken at different times of year and therefore under differing seasonal conditions;
- a key limitation is the time of year at which the surveys took place. The majority of the Solar Development Site was surveyed in autumn and winter, which can limit the ability of a surveyor to confidently classify some habitats or assess their suitability to support protected and/ or notable species. Due to the broadly agricultural nature of the habitats within the Solar Development Site, the vast majority of habitats were able to be reliably classified outside of the optimal survey period. Where the survey timing is likely to have posed a limitation, this has been clearly identified, with appropriate recommendations provided to address the limitation;
- species that are absent at the time of survey may return to or colonise a site at any future time;
- ecological survey data typically has a limited lifespan³⁹. The need to resurvey in the future should, in part, be based on professional judgement depending on the likelihood of change to the baseline; for example, conditions may change more rapidly due to ecological processes (succession in habitats) or extreme weather events;
- records held by local biological record centres and local recording groups are generally collected on a voluntary basis; therefore, the absence of records does not demonstrate the absence of species, it may simply indicate a gap in recording. Likewise, the presence of records for particular habitats and species does not automatically mean that these still occur within the area of interest or are relevant in the context of the Proposed Development;
- some areas of dense scrub and hedgerow were too densely vegetated to either walk through or provide visibility to ditches or other features within the understory. As such, it is possible that some features such as mammal burrows were not identified during the site walkover;
- due to additional land added being added to the Solar Development Site area, the non-statutory nature designations listed in this report are based on a 2km search area that does not include the west, south-west and north-east land parcels. The PEA will be refreshed as the Application progresses with updated local records centre data searches, for a 2km study area around the final Solar Development Site, plus a 1km buffer from the Grid Cable Route Search Area.

4. Baseline ecological conditions

4.1 International Statutory Designated Sites

4.1.1.1 There are four international sites designated for nature conservation within 10km of the Site (three within 10km of the Solar Development Site). The closest is Rutland Water SPA and Ramsar site, located 3.5km south-west of the Solar Development Site. The distance from the Solar Development Site and Cable Route Search Areas is shown in Table 2.

Table 2: Internationally Important Statutory Designated Sites within 10km

Site name	Reason for designation	Distance, connectivity and orientation from Solar Development Site	Distance from Site (including Grid Cable Route Search Area)
Rutland Water Ramsar/ SAC ⁴⁰	Major wetland formed by a large reservoir, supporting internationally significant populations of wintering and passage wildfowl such as teal <i>Anas crecca</i> .	3.5km south-west	5.3km west (Southern Grid Cable Route Search Area).
Grimsthorpe SAC ⁴¹	Designated for presence of early gentian <i>Gentianella anglica</i> in its northernmost range (2–3 colonies totalling several hundred plants in old oolitic limestone quarries) Supports Semi-natural dry grasslands and scrubland facies on calcareous substrates.	6.7km north-east	2.6km east (Northern Grid Cable Route Search Area).
Barnack Hills & Holes, SAC ⁴²	Designated as Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>). Orchid rich priority site including what is considered to be the largest UK population of the nationally scarce man orchid <i>Aceras anthropophorum</i> .	9.0km south-east	2.6km south (Southern Grid Cable Route Search Area)
Baston Fen SAC ⁴³	An inland waterway which qualifies as an SAC due to the presence of Spined loach <i>Cobitis taenia</i> .	>10km east	9.1km east (Northern Grid Cable Route Search Area).

4.2 National Statutory Designated Sites

4.2.1.1 There are several statutory designated sites of national importance within 2.5km of the Site as shown in Table 3.

Table 3: Statutory Designated Sites of National Importance within 2.5km of Site

Site name	Reason for designation	Distance, connectivity and orientation from Solar Development Site	Distance from Site (including Grid Cable Route Search Area)
Newell Wood SSSI	An oak-birch woodland; the site comprises one of the best remaining examples of acid lowland woodland in Leicestershire ⁴⁴ .	<5m north-east	10m south-east (Northern Grid Cable Route Search Area).
Clipsham Old Quarry and Pickworth Great Wood Site SSSI	Contains some of the best areas of species-rich limestone grassland in the county. Pickworth Great Wood is one of the largest remaining blocks of deciduous woodland in Leicestershire and contains stands	15m north, connected via continuation of habitat	305m west (Northern Grid Cable Route Search Area).

Site name	Reason for designation	Distance, connectivity and orientation from Solar Development Site	Distance from Site (including Grid Cable Route Search Area)
	representative of ancient, semi-natural woodland on clay soils in central England ⁴⁵ .		
Bloody Oaks Quarry SSSI	Best remaining examples of limestone grassland in Leicestershire, representative of grassland developed on soft limestones. Species-rich grassland ⁴⁶ .	15m south-east	1.8km west (Southern Grid Cable Route Search Area).
Ryhall Pasture and Little Warren Verges SSSI	The site combines one of the best remaining examples of semi-natural limestone grassland in Leicestershire with adjacent species-rich roadside verges in Lincolnshire. The grassland type is representative of swards developed on soft limestones in eastern and southern England ⁴⁷ .	270m east	650m south (Northern Grid Cable Route Search Area).
East Wood, Great Casterton SSSI	Site comprises one of the best remaining semi-natural woodlands in Leicestershire and is representative of semi-natural woodland on clay soils in Central England ⁴⁸ .	600m south-east	20m north (Middle Grid Cable Route Search Area).
Holywell Banks SSSI	Site is comprised of permanent unimproved calcareous grassland spanning 2 banks within larger grazed fields, a disused quarry and an area of roadside verge, all a top of soil formed from Eastern Jurassic Limestone. Intrinsic differences within the environment have allowed for a number of different plant communities to develop, several of which are rare species occurring at the northern limit of their British geographical range ⁴⁹ .	845m north	25m north-west (Northern Grid Cable Route Search Area).
Tickencote Marsh SSSI	Base-rich grazing marsh developed below a springline in the valley of the River Gwash, with dry and wet areas and a high species diversity ⁵⁰ .	860m south-west	1.2km west (Southern Grid Cable Route Search Area).
Tolethorpe Road Verges SSSI	Representative example of eastern Jurassic limestone grassland, which is a scarce habitat in the East Midlands, as a results of the conversion of pasture to cereal cropland. Supports several regionally uncommon plant species ⁵¹ .	1.2km east	10m and 15m south (Middle Grid Cable Route Search Area)
Great Casterton Road Banks	Representative example of calcareous grassland in South Lincolnshire, notable for its populations of three regionally rare plants: sulphur clover <i>Trifolium ochroleucon</i> , greater broom rape <i>Orobancha rapum-genistae</i> , and perennial flax <i>Linum perenne</i> ⁵²	1.4km south-east	860m south (Southern Grid Cable Route Search Area).
Empingham Marshy Meadows SSSI	Base-rich marsh and fen, representative of marsh communities in Central and Southern England. Complex of habitats along the valley of the North Brook. Grassland sward has developed a flora characteristic of calcareous soils, while nearer the floor of the valley the occurrence of springs has given rise to the formation of a number of damp grasslands and marshes ⁵³ .	1.4km south-west	>2.5km

Site name	Reason for designation	Distance, connectivity and orientation from Solar Development Site	Distance from Site (including Grid Cable Route Search Area)
Holywell Banks SSSI	Site consisting of permanent unimproved calcareous grassland, grazed fields, roadside verge, and disused quarry, on limestone soils. Several rare species occur here, with some near to the northern limit of their British geographical range ⁵⁴	1.4km north	<5m (Northern Grid Cable Route Search Area).
Tolethorpe Road Verges SSSI	Representative example of eastern Jurassic limestone grassland, which is a scarce habitat in the East Midlands, as a results of the conversion of pasture to cereal cropland. Supports several regionally uncommon plant species ⁵⁵	1.6km east	15m south (Middle Grid Cable Route Search Area).
Shacklewell Hollow SSSI	A complex of semi-natural habitats with species-rich neutral marsh along a small tributary of the River Gwash ⁵⁶ .	2.2km south-west	2.5km south-west (Southern Grid Cable Route Search Area).
Castle Bytham Quarry SSSI	Most complete and stratigraphically significant exposure of the Upper Lincolnshire Limestone Formation, containing an assemblage of ammonites that have been crucial in determining the age of the formation ⁵⁷ .	>2.5km	475m south-east (Northern Grid Cable Route Search Area).
Swinstead Valley SSSI	Site is comprised of rare calcareous grassland developed on Eastern Jurassic Limestone derived soils ⁵⁸ .	>2.5km	1.1km east (Northern Grid Cable Route Search Area).
Grimsthorpe Park SSSI	Best remaining example of ancient parkland in Lincolnshire, home to ancient and mature trees that support over 250 species of beetle and hollow trees that provide roosts for bats ⁵⁹ .	>2.5km	870m east (Northern Grid Cable Route Search Area).

4.3 Non-statutory designated sites

4.3.1.1 There are numerous notified non-statutory designated sites (LWS) identified within the 2km of the Solar Development Site, as shown in Table 4.

Table 4: Non-statutory designated sites within 2km of the Site

Site name	Reason for designation	Distance, Solar Development Site (m)
A1 Old Gt N Rd sliproad, Great Casterton	A high-quality habitat with presence of a Red Data Book species. Primary calcareous grassland with 9 species from Calcareous grassland list J and over 5 other species. This includes <i>Carex divulsa ssp leersi</i> and <i>Poa angustifolia</i> which are both on the Leicestershire & Rutland rare plant register (2007).	0
Verge N of The Grange (west side)	High-quality habitat. Primary mesotrophic grassland with a diverse plant community, including 7 species from mesotrophic grassland list F.	0
Verge N of The Grange (east side)	High-quality habitat. Primary mesotrophic grassland with a diverse plant community, including 7 species from mesotrophic grassland list F.	0

Site name	Reason for designation	Distance, Solar Development Site (m)
Pickworth Road RVNR west: N of Mounts Lodge	High-quality habitat. Primary mesotrophic grassland with a diverse plant community, including more than 10 species from mesotrophic grassland list F.	0
Golf Club Hedgerow, NW side of road	High-quality habitat. 2-3m high (exceeds minimum height of 1.3m), 680m long and has at least 7 locally native trees or shrubs.	0
Little Oaks Wood	Diverse habitat. Woodland closely associated with other woodland LWS	0
Bloody Oaks	High quality habitat, ancient semi-natural woodland.	0
Empingham crossroads to Bloody Oaks verge	High quality habitat, mixed and calcareous grassland.	0
Rutland County golf-club (A1) verge - south	High quality habitat, mixed and calcareous grassland.	0
Rutland County golf-club (A1) verge - north	High quality habitat, mixed and calcareous grassland.	0
Empingham (Bloody Oaks) Roadside Verge Nature Reserve	High-quality habitat. Primary calcareous grassland covering an area of 2.5km ² . Diverse plant community with 12 species recorded from calcareous grassland list J.	5
Hedgerow, Empingham adj Golf club (SE side) (LWS)	High-quality habitat. 2.5m high (exceeds minimum height of 1.3m), 480m long and has at least 7 locally native trees or shrubs	5
Pickworth Road RVNR east: N of Mounts Lodge	High-quality habitat. Primary mesotrophic grassland with a diverse plant community, including more than 10 species from mesotrophic grassland list F.	10
Grassland in 3-corner Plantation	High quality habitat. Mixed grassland, including both calcareous grassland (9 species from list J) and mesotrophic grassland (6 species from list F).	20
Empingham Old (Lane) Wood	High quality and diverse habitat. Ancient semi-natural woodland, with adjacent plantation.	175
Tickencote Laund	No further information available.	180
The Drift, Pickworth (north side) (LWS)	High-quality habitat and presence of red data book species. Primary mesotrophic grassland with a diverse plant community, including more than 10 species from mesotrophic grassland list F, as well as over 5 other species. This includes <i>Carex divulsa</i> spp <i>leersii</i> which is listed on Leicestershire and Rutland Rare Plant Register 2007.	210
The Drift, Pickworth (south side) (LWS)	High-quality habitat. Primary mesotrophic grassland with a diverse plant community, including more 7 species from mesotrophic grassland list F. Also, primary calcareous grassland with at least 5 species from calcareous grassland list J. Therefore, also reaches criteria for mixed grassland.	220
Empingham Old (Keepers) Wood (LWS)	High quality habitat. Ancient semi-natural woodland.	240
Empingham Roadside Verge (LWS)	High-quality habitat. Primary mesotrophic grassland, linear habitat of over 1.0km on both sides of the road, diverse plant community with 17 species recorded from mesotrophic grassland list F.	250

Site name	Reason for designation	Distance, Solar Development Site (m)
Pickworth Road RVNR (west) S of Mounts Lodge	A high-quality habitat with presence of a Red Data Book species. Primary calcareous grassland with a diverse plant community with 11 species from Calcareous grassland list J as well as over 5 other species. This include Onions spinosa which is on the Leicestershire & Rutland rare plant register (2007).	280
Pickworth Road RVNR (East) S of Mounts Lodge	A high-quality habitat with presence of a Red Data Book species. Primary calcareous grassland with a diverse plant community with 8 species from Calcareous grassland list J and over 5 other species. This includes Legousia hybrida which is on the Leicestershire & Rutland rare plant register (2007).	290
Home Farm (LWS)	High quality habitat and presence of red data book species. Field margin habitat with 9 species from list M. 3 red data book species present on site.	310
Turnpole wood	LWS (Candidate: ASNW/PAWS/Historic)	310
Hedge Near Cross Roads Farm Cottages (LWS)	High-quality habitat. 2m high (exceeds minimum height of 1.3m), 280m long and has at least 6 locally native trees or shrubs.	510
Empingham Old Wood Grassland (LWS)	High-quality habitat and presence of red data book species. Primary mesotrophic grassland (14 species from list F), and primary wet grass land (21 species, 14 from list F and 13 from wet grassland list G). Meets criteria for mixed grassland with a very diverse plant community (23 species including those from list F&G, and 1 species from list J and Acid grassland list H). Presence of Carex divulsa leersii, from the Leicestershire and Rutland rare plant register.	520
Ryhall Rd Hedgerow S of Ingethorpe (west side) Tinwell (LWS)	High-quality habitat. 2.6m high (exceeds minimum height of 1.3m), 170m long and has at least 6 locally native trees or shrubs.	560
The Drift Verge, Ryhall (north side) (LWS)	High-quality habitat. Linear grassland site 2.25km in length. Primary mixed grassland with a diverse plant community. 12 species from the mesotrophic/calcareous grassland lists combined.	590
The Drift Verge, Ryhall (south side) (LWS)	High-quality habitat and presence of red data book species. Orobanche elatior and Atropa belladonna both present which are red data book species	595
Empingham Old (Lodge) Wood	High quality habitat, ancient semi-natural woodland	600
Empingham Old Wood (LWS)	High quality habitat, ancient semi-natural woodland.	605
Ash Tree Beetle Site (LWS)	Red data book species. This site is a Site of Importance for Nature Conservation due to Hypnogyra angularis, formerly Xantholinus angularis recorded at this site within the ash tree.	745
Hedgerow, Clipsham (1) (LWS)	High-quality habitat. 3m high (exceeds minimum height of 1.3m), 180m long and has at least 6 locally native trees or shrubs.	755
Hedgerow, Clipsham (2) (LWS)	High-quality habitat. 2.3m high (exceeds minimum height of 1.3m), 339m long and has at least 5 locally native trees or shrubs. Two associated habitat features of interest are found along the hedgerow including a ditch and dead wood/old layers.	945

Site name	Reason for designation	Distance, Solar Development Site (m)
Empingham RVNR W of Cross Roads Farm (both sides)	Transitional calcareous/mesotrophic grassland.	965
Empingham verge (S of Crossroads Farm) west side	Calcareous grassland.	985
Woolfox Wood	LWS (Candidate: ASNW/Historic)	1010
Osbonall Wood (LWS)	High quality habitat, ancient semi-natural woodland.	1030
Tolethorpe, Ryhall Rd verge (LWS)	High quality habitat. Primary calcareous grassland with 5 species from list J.	1040
Greetham Wood Far	LWS (Candidate: ASNW/Historic)	1080
Hedgerow, Clipsham (3) (LWS)	High-quality habitat. 3m high (exceeds minimum height of 1.3m), 292m long and has at least 6 locally native trees or shrubs.	1185
Mature Oak, Clipsham (2) (LWS)	High-quality habitat. Girth measures 4.0m (exceeds 3.77m) at a height of 1.3m above the roots. Dead branches visible and evidence of heart-rot.	1210
Mature Oak, Clipsham (1) (LWS)	High-quality habitat. Girth measures 3.90m (exceeds 3.77m) at a height of 1.3m above the roots. Dead branches visible.	1230
Clipsham New Quarry (East) (LWS)	High quality and diverse habitat. Calcareous grassland and scrub.	1250
Clipsham New Quarry (West) (LWS)	High quality and diverse habitat. Mixed grassland with 13 species from calcareous/mesotrophic/wet acidic grassland lists combined.	1260
Clipsham Bidwell Lane verge (LWS)	High quality habitat. Primary calcareous grassland, 6 species present from list J.	1270
Tinwell Roadside Verge (east side) (LWS)	High-quality habitat. Primary mesotrophic grassland, diverse plant community with over 11 species recorded from mesotrophic grassland list F and at least 2 other species. Site also contains Poa humilis which is on the rare plant species register.	1370
Tinwell Roadside Verge (west side) (LWS)	High-quality habitat and presence of red data book species. Primary mesotrophic grassland, diverse plant community with 7 species recorded from mesotrophic grassland list F. Site also contains Carex divulsa ssp leersi which is on the rare plant species register	1370
The Larches Rides	High quality habitat. Mixed grassland with 10 species from calcareous/mesotrophic/wet acidic grassland lists combined.	1580
Tolethorpe Oaks and adj scrub	LWS (Candidate: ASNW/PAWS/Historic)	1630
Tolethorpe Mill verge	High quality habitat, mixed and calcareous grassland.	1795
Little Casterton Verge (west) (LWS)	High-quality habitat. Primary mesotrophic grassland with a diverse plant community of 9 species from mesotrophic grassland list F	1985

Site name	Reason for designation	Distance, Solar Development Site (m)
Little Casterton Verge (east) (LWS)	High-quality habitat. Primary mesotrophic grassland with diverse plant community of 11 species from mesotrophic grassland list F.	2005

4.4 2km Habitats - Desk study

4.4.1 Ancient woodland sites

4.4.1.1 60 parcels of ancient woodland were identified within 1km of the Site, with 24 of these parcels identified within 1km of the Solar Development Site; this includes several parcels being immediately adjacent to the Solar Development Site. This includes Pickworth Great Wood (a.k.a. Holywell Wood - ancient semi-natural woodland (ASNW)) located north of the north-east portion, Woodhead Wood (ASNW and ancient replanted woodland) located adjacent to the east, and Bloody Oaks (ASNW) located adjacent to the south-west. A small portion of three ancient woodland parcels; High Wood, Great Osgrove Wood, and Dodsey Woods – all ASNW – are located within the Northern Cable Route Search Area.

4.4.2 Ancient and veteran trees

4.4.2.1 No ancient or veteran trees were recorded on the ATI within the Solar Development Site, but groupings were recorded on the ATI as present within the study area. This included a cluster of veteran and notable trees south of the River Gwash at Little Casterton, as well as a veteran ash *Fraxinus excelsior* at Greetham Valley Golf Course.

4.4.3 Priority rivers

4.4.3.1 No rivers listed as priority on the Natural England priority rivers map were returned from within 2km of the Solar Development Site.

4.4.4 Habitats of Principal Importance (HPI)

4.4.4.1 Numerous HPI were identified within the desk study within 2km of the study area. These include:

- Lowland calcareous grassland
Numerous small parcels, scattered throughout the wider study area.
- Lowland meadows
One parcel, located 1.21 km west of the site Solar Development Site.
- Deciduous woodland
Numerous parcels, scattered throughout the study area.

4.5 Habitats - Field study

4.5.1.1 Habitats within the Solar Development Site are presented within Annex B. Target notes relating to specific biodiversity features recorded during the field survey are shown as target notes, with associated information recorded in Table 5 and Annex A.

Table 5: Target notes of ecologically notable features present on the Solar Development Site during the site walkovers.

Target Note Number	Description of ecologically notable feature
1	Lady's bedstraw noted in hedge margin
2	Landowner describes damp field as having up to 40 woodcock and snipe in winter.

Target Note Number	Description of ecologically notable feature
3	Disused mammal burrow, 2 entrances
4	Disused mammal burrow, 2 entrances
5	Mammal burrow, 4 entrances, approximately 10x10cm
6	Badger latrine
7	Four temporary ponds with high GCN suitability
8	Four hole latrine with fresh dung
9	Mammal tracks throughout this hedgerow
10	Badger main sett 15-20 active holes
11	Mature ash which has cracked off half way up the trunk. Difficult to inspect due to dense scrub and ivy but potential veteran
12	Very active latrine with 19 pits - mostly with fresh dung
13	Active outlier sett
14	Badger tracks
15	Possible badger latrine
16	Badger sett; one entrance been caved by tractor, at least 2 holes
17	Badger track
19	Ancient woodland with numerous mature trees - high suitability for significant bat assemblage
20	Large active badger latrine
21	Potential veteran oak tree - has been historically coppiced
22	Very large veteran oak
23	At least four hole partially active badger sett centred around dry ditch. Probable outlier but could be subsidiary
24	Potential veteran, ash with barn owl roost potential. Dead barn owl inside, streaking down inside of tree
25	Line of mature and ecologically valuable oak and ash with numerous BRP features
26	At least eight latrines
27	Badger sett with lots of bedding, old rabbit warren now taken over. Highly active
28	Veteran tree with bat roost potential. One besides with better potential
29	Chicory
30	Latrine
31	Lots of New Zealand Pygmyweed
32	Mature oak BRP
33	Veteran with potential bat roost but not able to inspect
34	Dung pit
35	Potential veteran with bat roost potential
36	Well maintained Barn owl box (number 10716) no signs of use
37	Potential veteran ash with numerous cavities and deadwood features. Barn owl roost potential but open at the top reduces nesting potential, no evidence identified
38	Snipe flush within wetland. Common frog also found
39	Potential veteran tree
40	Two potential veteran trees one with barn owl box

Target Note Number	Description of ecologically notable feature
41	Potential wood pasture and parkland, intensively sheep grazed but contains numerous potential veteran and highly mature Ash and hawthorn each with bat features
42	Line of trees with ash with BRP
43	Potentially veteran walnut
44	Potential ancient ash tree in wood pasture and parkland
45	Veteran oak tree with hollowing, could be ancient
46	Veteran ash with bat potential and barn owl roost potential, splashing
47	Veteran ash with BRP and PNS, evidence of other bird nesting
48	Probable main sett in old boundary feature. At least ten holes, some disused but others active with large spoil heaps and new entrances extending into fields
49	Potential veteran oaks
50	Mature ash
51	Mature field maple with BRP
52	Field maple BRP
53	Mature hedgerow ash with bat potential
54	Spear leaved fluellen in margin
55	Several hundred wood pigeons roosting in winter stubble
56	Chicory in arable field margin
57	Large sett in boundary. Appears partially active with some setts disused
58	Landowner reports breeding nightingale and goshawk
59	Approximately 40 black headed gulls loafing in field
60	Large bank of planted cotoneaster species for game bird cover on edge of plantation
61	Round leaved fluellen in field margin
62	Mature oak with potential bat roosting features. Tree clearly much older than surrounding plantation
63	Highly mature ash with numerous potential bat roosting features
64	Potentially valuable bat flight line and roosting features given mature trees with scrubby understory connecting two woodlands
65	Badger dung lit in quarry - active
66	Round leaved fluellen in margin
67	Dense scrub on slope, considered likely to conceal badger setts
68	Disused badger sett in limestone quarry
69	Ancient woodland with numerous mature trees with bay roost features. Also suitable for breeding red kite and goshawk
70	Possible sett approx. 3 entrances
71	Multiple birds' nests throughout hedgerows
72	Adjacent woodland block with many mature oak trees with potential roost features
73	Woodland with some mature trees with bat features
74	Barn owl potential
75	Two hole badger sett
76	Farm outbuildings, asbestos. Negligible fit for bats, barn owl?
77	Disused outlier in hedgerow, now seemingly used by rabbits
78	Standing water pond in ditch in line of trees. No marginal plants

Target Note Number	Description of ecologically notable feature
79	Pond with duckweed, shaded
80	Pond
81	Pond
82	Hollowed centre ash, barn owl pellet found, possible barn owls, and bat potential up hollowed branch, bird of prey splashing next to it
83	Large tuft of badger hair
84	Active sett 5 entrances
85	Badger sett 4+ entrances
86	Pair of barn owls in barn
87	Small pond, lots of tadpoles
88	Barn owl observed leaving cavity in tree on two occasions.
89	Large Dried up pond
90	Large fallen oak tree and stump
91	Marure sycamore with knot and limb hole PRFs
92	Dead oak tree in hedge row. Cracked wood and peeling bark could provide PRF
93	Mammal burrow, 20x20cm, at least 3 entrances, unclear if active.
94	Mammal burrow with 2 entrances
95	Badger latrine with fresh dung.
96	Badger latrine with fresh dung.
97	Badger sett, 6 entrances, appears disused, slug pellets within.
98	Oak with owl box - potential nest site.
99	Dead very mature tree trunk with invertebrate features.
100	Dead ash, possible ash dieback. Lots of invertebrate features.
101	Potential veteran tree
102	Mammal track with badger hair
103	Numerous mature trees with shrubby understory and bat features, could be good flight path for bats

4.5.2 g3c – other neutral grassland

- 4.5.2.1 There were discrete parcels of moderately diverse neutral grasslands scattered across the Solar Development Site. Most notably, an area of *Holcus – Juncus* neutral grassland (g3c8) was present in the far north of the Solar Development Site on the border of Pickworth Great Wood. It was a good representation of the habitat type; dominated by Yorkshire fog *Holcus lanatus* and creeping buttercup *Ranunculus repens*, with frequent soft rush *Juncus effusus* and overall moderate species diversity. There was also a parcel of *Arrhenatherum* neutral grassland (g3c5) in the east of the Solar Development Site on a steep slope that was also a good presentation of its habitat type; dominated by false oat grass *Arrhenatherum elatius* with frequent salad burnet *sanguisorba minor*, sorrel *Rumex acetosa*, ribwort plantain *Plantago lanceolata* and soft brome *Bromus hordeaceus*. Both of these parcels exhibited good structural diversity and variable sward heights, with little to no physical damage.
- 4.5.2.2 Elsewhere, small, scattered patches of more poorly defined other neutral grassland (g3c) were present, often associated with scrub, and tended to be overgrown with ruderals and nettles.

4.5.3 g4 – modified grassland

- 4.5.3.1 Numerous areas of modified grassland were recorded throughout the Solar Development Site . This primarily consisted of grassland for agricultural use on the borders of croplands and was generally species-poor. The grassland habitats were often intensively grazed or mown to a short length. The grasslands are characterised by a dominance of mostly perennial rye grass *Lolium perenne* or Yorkshire fog, as well as nettle, creeping thistle *Cirsium arvense*, docks *Rumex spp.*, ribwort plantain and cocksfoot.
- 4.5.3.2 There were several areas of modified grassland that were of greater ecological value, comprising parcels of potential wood pasture and parkland. This included a parcel of intensively sheep grazed wood pasture and parkland on the central north/ north border of the Solar Development Site with numerous mature to veteran ash, hawthorn *Crataegus monogyna*, walnut *Juglans regia* and blackthorn trees *Prunus spinosa* (Photograph 1).



Photograph 1: A parcel of wood pasture and parkland towards on the central north/ northern border of the Solar Development Site

4.5.4 w1g – other broadleaved woodland

- 4.5.4.1 There are a number of parcels of woodland interspersed throughout the Solar Development Site and immediately adjacent to the Solar Development Site. The majority of these woodlands were low quality plantations, many of which are utilised for pheasant rearing (Photograph 2). Species included sycamore *Acer pseudoplatanus*, ash, field maple *Acer campestre*, cherry *Prunus avium*, pine *Pinus spp.*, oak, hazel *Corylus avellana*, and hawthorn. These plantation woodlands were generally immature with limited structural and age diversity and planted in regimented lines. These woodlands also typically lacked an understorey and often featured disturbance from nutrient enrichment and/or damaged ground. In some woodlands there were large patches of invasive cotoneaster *Cotoneaster horizontalis* present used as cover for pheasants.



Photograph 2: Other broadleaved woodland used for pheasant rearing in the northeast parcel with ground disturbance.

- 4.5.4.2 Lines of trees are present throughout the Solar Development Site in a variety of contexts. Line of trees are classified as w1g within UKHab, with the secondary code 33. Throughout the Solar Development Site, several lines of trees are present which are of considered to be more ecologically valuable. These lines of trees generally consisted of semi-mature, mature and veteran ash and oak trees.
- 4.5.4.3 Within the north parcel of the Solar Development Site are two sets of mature lines of trees. One featured mature oak and ash with scrubby vegetation beneath and a dry ditch at the base (Photograph 3). This line of trees included at least one veteran oak.



Photograph 3: Line of mature ash and oak trees within the north parcel

4.5.4.4 Within the wood pasture and parkland area on the central north/ north border of the Solar Development Site are several scattered ecologically valuable lines of trees. These trees included highly mature and potential veteran ash, field maple, horse chestnut *Aesculus hippocastanum*, interspersed with some gappy highly mature hawthorn and blackthorn (Photograph 4).



Photograph 4: A line of trees featuring highly mature hawthorn and potential veteran ash within the potential wood pasture and parkland on the central north/ north border of the Solar Development Site .

- 4.5.4.5 Within the northern parcel of the Solar Development Site is a line of generally mature trees, consisting of large oaks and several ashes, with large gaps in the canopy in the centre. These trees had veteran features and scrub lying beneath; however, some of the ash appeared to have signs of dieback (Photograph 5).



Photograph 5: Ash in the north parcel with possible dieback.

4.5.4.6 On the eastern border of the central south parcel is a line of mature and semi-mature oak and ash, with a shrubby understorey (Photograph 6). This line of trees connected two portions of woodland, including Woodhead Wood, an ancient woodland site.



Photograph 6: A line of mature and semi mature oak and ash toward in the central south parcel

4.5.5 h3a – blackthorn scrub

- 4.5.5.1 Discrete stands of blackthorn dominated scrub were noted in several scattered patches across the Solar Development Site, which have likely established due to absent management. Blackthorn scrub outside of west coastal areas can be further classified to the level 5 code h3a6. In the north parcel is a large dense bank of blackthorn blending into a pocket of woodland lying to the east (Photograph 7).



Photograph 7: A dense blackthorn dominated hedgerow in the north parcel

4.5.6 h2a - native hedgerow

- 4.5.6.1 Native hedgerows were prominent throughout the Solar Development Site (Photograph 8). Native hedgerow falls under the code h2a and can further be classified to the level 5 code h2a5 (species-rich native hedgerow) where the number of native woody or archeophyte species equals or exceeds five in a given 30m section. Common species included hawthorn, blackthorn, field maple, hazel, buckthorn *Rhamnus cathartica*, privet *Ligustrum ovalifolium*, dog rose *Rosa canina*, ash and elder *Sambucus nigra*, with some standard trees interspersed throughout. Management of these hedgerows was varied, with some showing evidence of regular trimming, while others were gappy and neglected and would constitute defunct hedgerows.



Photograph 8: Species-rich hedgerow present within the north parcel

4.5.6.2 Species-poor native hedgerow was abundant throughout the entirety of the Solar Development Site. Species-poor hedgerow falls under the code h2a and can be further classified to the level 5 code h2a6. These hedgerows were primarily dominated by hawthorn or blackthorn, with occasional dog rose, bramble *Rubus spp.* and elder. Many of these hedgerows featured ground flora including ivy and nettle, characteristic of nutrient-rich soils.

4.5.7 h3d – bramble scrub

4.5.7.1 Bramble scrub was abundant throughout the Solar Development Site, particularly along the margins of agricultural land parcels. It's presence likely reflects reduced management of hedgerows in these areas, allowing bramble to proliferate.

4.5.8 h3h – mixed scrub

4.5.8.1 Mixed scrub comprised a major component of the habitats within the Solar Development Site bordering agricultural land parcels. This habitat has developed from the unmanaged succession of hedgerows, forming dense, linear bands and larger patches in areas of historic neglect. This habitat comprised a mixture of species often including bramble, hawthorn, blackthorn, elder and field maple. These areas exhibit structural diversity, with some sections forming dense thickets and others transitioning into more open scrub with scattered saplings.

4.5.8.2 Notable patches of mixed scrub include:

- in the north parcel, there is an area of scrub dominated by bramble, with some field maple, hawthorn and blackthorn; and
- within the west parcel is a dense boundary mixed scrub that has arisen from the succession of historic hedgerows (Photograph 9). This comprises a dense thicket of impenetrable bramble and woody species of blackthorn, ash, field maple and hazel.



Photograph 9: A dense thicket of scrub arising from neglected historic hedgerows in the west parcel

4.5.9 c1a – arable field margins

- 4.5.9.1 Several arable field margins were identified across the Solar Development Site. These margins varied in width, vegetation cover, and species diversity, providing a range of habitat features that contribute to the ecological character of the Solar Development Site.
- 4.5.9.2 The majority of arable field margins constituted tussocky grasses such as Timothy *Phleum pratense*, false-oat grass, cock's-foot, barren brome *Bromus sterilis*, meadow fescue *Festuca pratensis*, spear thistle *Cirsium vulgare*, white clover *Trifolium repens*, bristly ox-tongue *Helminthotheca echioides*, lesser burdock *Arctium minus*, lady's bedstraw *Galium verum*, yarrow *Achillea millefolium*. Tussocky field margins can be further classified to level 5 code c1a5.
- 4.5.9.3 In the central north parcel, a field margin supported a high proportion of forbs, including knapweed, bristly ox tongue, bird's foot trefoil *Lotus corniculatus*, and yarrow. This margin provided a more diverse floral composition can be further classified with the level 5 code c1a6.
- 4.5.9.4 These field margins display a range of characteristics, from tussocky grass-dominated areas to forb-rich and rank vegetation habitats. These margins provide structural diversity within the Solar Development Site.

4.5.10 c1b – temporary grass and clover leys

- 4.5.10.1 Some parts of the Solar Development Site, was covered by temporary grass and clover lays. These are characterised by a mix of sown grass species and clover, forming part of the agricultural rotation and lack the diversity of more established grassland habitats.

4.5.11 c1c – cereal crops

- 4.5.11.1 Cereal crops were the dominant habitat within the Solar Development Site. These fields were interspersed with smaller habitat features and bordered by ditches or hedgerows. The primary crops observed included winter wheat *Triticum aestivum*, spring oats *Avena sativa*, and maize *Zea mays*. These fields were intensively managed and comprised uniform crop monocultures. A large proportion of fields or sections of fields were specifically planted with cover crops, such as great millet *Sorghum bicolor*, for pheasant cover, reflecting the Solar Development Site's agricultural and game management practices.
- 4.5.11.2 A large proportion of the land parcels was made up of winter stubble Photograph 10. These can be further classified under the level 5 code c1c5.



Photograph 10: Winter stubble present in the west parcel

- 4.5.11.3 All other cereal crops were found scattered throughout the Solar Development Site (Photograph 11). These can be further classified under the level 5 code c1c7.



Photograph 11: Cereal crops within the north parcel

4.5.12 c1d – non-cereal crops

4.5.12.1 Other non-cereal crops, such as sugar beet *Beta vulgaris*, parsley *Petroselinum crispum* and broad bean *Vicia faba* were also frequently observed. These were often planted in rotation with cereal crops and were characteristic of the agricultural land use within the Solar Development Site. These can be further classified to the level 5 code c1d8.

4.5.13 u1c – artificial unvegetated, unsealed surface

4.5.13.1 There were a few scattered parcels of built-up areas and gardens across the Solar Development Site, the most significant of which was a long farm track situated in the north Photograph 12.



Photograph 12: Farm track in the north parcel

4.5.14 r1f - temporary standing water

- 4.5.14.1 Four temporary ponds were identified within a patch of damp grassland in the central north parcel of the Solar Development Site, forming a distinct wetland feature (Photograph 13). These ponds were dominated by common spike rush *Eleocharis palustris*, with additional species including compact rush *Juncus conglomeratus*, jointed rush, soft rush *Juncus effusus*, yellow-flag iris *Iris pseudacorus*, small sweet-grass *Glyceria declinata* and reed canary grass *Phalaris arundinacea*. The vegetation reflects regular, temporary inundation, likely driven by seasonal rainfall and the water appeared to be of good quality. There was no shading from surrounding vegetation and the ponds had an absence of duckweed *Lemna spp.* or filamentous algae.



Photograph 13: One of four ponds present within a damp grassland in the north parcel

- 4.5.14.2 A further area of standing water was identified in the west of the north parcel characterised by extensive coverage of New Zealand pygmyweed *Crassula helmsii* (Photograph 14). Other macrophytes present included reed canary grass, gypsywort *Lycopus europaeus*, soft rush, compact rush, common spike rush, jointed rush, and reed mace *Typha latifolia*.



Photograph 14: An area of standing water featuring New Zealand pygmyweed in the north parcel

4.5.15 r1a – eutrophic standing water

- 4.5.15.1 In the north of the central south section of the Solar Development Site is a pond contained within a parcel of arable land. The pond was dry at the time of survey but is thought to be seasonally wet and is connected to a farm drain. The pond is surrounded by a thin line of hawthorn scrub but does not appear to be more than 50% shaded.

4.5.16 r1g – other standing water

- 4.5.16.1 There were several small permanent ponds scattered around the Solar Development Site. Many of these are adjacent to or surrounded by cropland and were shaded from surrounding vegetation, which was made up of mixed scrub and scattered trees. Notable areas of standing water are described below.
- 4.5.16.2 A large permanent pond is present in the south of the central south section of the Solar Development Site, within an arable field (Photograph 15). Many waterfowl were present and macrophytes included hard rush *Juncus inflexus*, branched-bur reed *Sparganium erectum* and gypsywort.



Photograph 15: A large permanent pond in the centre of the north parcel

- 4.5.16.3 West of the A1 Great North road in the west parcel of the Solar Development Site is a pond between a portion of woodland and an arable field (Photograph 16). This pond had semi-natural habitat surrounding it and an absence of duckweed or filamentous algae. It had little shading from surrounding vegetation and species included common reed *Phragmites australis* and lesser pond sedge. While the water appeared turbid at the time of survey, it is suspected that this is the result of a storm.



Photograph 16: A pond within the west parcel

- 4.5.16.4 A moderately sized permanent pond is present in the northeast of the Solar Development Site surrounded by sheep grazing pasture. It was surrounded by mixed scrub and native trees causing a moderate amount of overshadowing, with some fallen deadwood encroaching into the water. There was little to no marginal vegetation, with grazing pasture right up to the pond edge, and it did not contain any filamentous algae or duckweed (see Photograph 17).



Photograph 17: A pond within the north east of the site

4.6 Protected and notable species

4.6.1 Flora

Desk study

4.6.1.1 Numerous plant species were returned from the desk study from within 2km of the Solar Development Site. Records of relevance are summarised in Table 6.

Table 6: Relevant flora species returned from the desk study.

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to Solar Development Site (km)	Number of records
<i>Anagallis arvensis</i> subsp. <i>arvensis</i>	Scarlet pimpernel	LRPR (2022)	22/09/2020	0	5
<i>Anthemis cotula</i>	Stinking chamomile	GBNNSIP, LRPR (2022)	13/05/2019	0	1

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to Solar Development Site (km)	Number of records
<i>Bromus racemosus</i>	Smooth brome	LRPR (2022)	20/08/2019	0	9
<i>Bromus secalinus</i>	Rye brome	GBNNSIP, LRPR (2022)	30/10/2023	0	4
<i>Campanula rotundifolia</i>	Harebell	LRPR (2022)	30/10/2023	0	16
<i>Chaenorhinum minus</i>	Small toadflax	GBNNSIP, LRPR (2022)	21/08/2019	0	4
<i>Euphorbia exigua</i>	Dwarf spurge	CITES-B, GBNNSIP, LRPR (2022)	30/10/2023	0	12
<i>Fragaria vesca</i>	Wild strawberry	LRPR (2022)	01/05/2023	0	25
<i>Helianthemum nummularium</i>	Common rock-rose	LRPR (2022)	26/06/2021	0	21
<i>Kickxia elatine</i>	Sharp-leaved fluellen	GBNNSIP, LRPR (2022)	30/10/2023	0	15
<i>Knautia arvensis</i>	Field scabious	LRPR (2022)	30/10/2023	0	24
<i>Legousia hybrida</i>	Venus's-looking-glass	GBNNSIP, LRPR (2022)	22/05/2019	0	4
<i>Lithospermum officinale</i>	Common gromwell	LRPR (2022)	29/08/2021	0	22
<i>Mentha arvensis</i>	Corn mint	LRPR (2022)	02/07/2019	0	10
<i>Silene noctiflora</i>	Night-flowering catchfly	GBNNSIP, LRPR (2022)	24/08/2017	0	5
<i>Sison amomum</i>	Stone parsley	LRPR (2022)	11/08/2019	0	16
<i>Torilis nodosa</i>	Knotted hedge-parsley	LRPR (2022)	23/06/2021	0	7
<i>Valeriana officinalis</i>	Common valerian	LRPR (2022)	17/07/2021	0	21
<i>Succisa pratensis</i>	Devil's-bit scabious	LRPR (2022)	19/09/2022	0	5
<i>Brachypodium rupestre</i>	Tor-grass	LRPR (2022)	26/04/2021	0	3
<i>Ophrys apifera</i>	Bee orchid	CITES-B, LRPR (2022)	05/03/2022	0	39
<i>Briza media</i>	Quaking-grass	LRPR (2022)	25/09/2023	0	12
<i>Nepeta cataria</i>	Cat-mint	GBNNSIP, LRPR (2022)	22/05/2019	0	1
<i>Veronica officinalis</i>	Heath speedwell	LRPR (2022)	29/08/2021	0	11
<i>Carlina vulgaris</i>	Carline thistle	LRPR (2022)	01/05/2023	0	14
<i>Clinopodium acinos</i>	Basil thyme	BAP, LRPR (2022), S41	26/04/2021	0	5
<i>Leontodon saxatilis</i>	Lesser hawkbit	LRPR (2022)	29/08/2021	0	1

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to Solar Development Site (km)	Number of records
<i>Geranium columbinum</i>	Long-stalked crane's-bill	LRPR (2022)	26/04/2021	0	2
<i>Helictotrichon pratense</i>	Meadow oat-grass	LRPR (2022)	29/08/2021	0	1
<i>Arctium lappa</i>	Greater burdock	GBNNSIP, LRPR (2022)	07/07/2021	0	4
<i>Valerianella dentata</i>	Narrow-fruited cornsalad	GBNNSIP, LRPR (2022)	30/05/2017	0	1
<i>Cynoglossum officinale</i>	Hound's-tongue	LRPR (2022)	04/06/2022	0	2
<i>Hippocrepis comosa</i>	Horseshoe vetch	LRPR (2022)	05/06/2014	0	8
<i>Polygala calcarea</i>	Chalk milkwort	LRPR (2022)	26/04/2014	0	12
<i>Thymus polytrichus</i> subsp. <i>britannicus</i>	Mother of thyme	LRPR (2022)	24/06/2020	0	12
<i>Hyacinthoides non-scripta</i>	Bluebell	LRPR (2022)	01/05/2025	0	26
<i>Carex divulsa</i> subsp. <i>leersii</i>	Many-leaved sedge	LRPR (2022)	12/05/2022	0.01	2
<i>Anthriscus caucalis</i>	Bur chervil	LRPR (2022)	21/05/2019	0.02	1
<i>Plantago media</i>	Hoary plantain	LRPR (2022)	15/06/2023	0.02	10
<i>Gymnadenia conopsea</i>	Common fragrant-orchid	LRPR (2022)	13/07/2017	0.02	1
<i>Carex muricata</i> subsp. <i>pairae</i>	Small-fruited prickly-sedge	LRPR (2022)	01/07/2019	0.02	2
<i>Chelidonium majus</i>	Greater celandine	GBNNSIP, LRPR (2022)	26/09/2019	0.04	8
<i>Plantago coronopus</i>	Buck's-horn plantain	LRPR (2022)	05/03/2022	0.06	6
<i>Cerastium semidecandrum</i>	Little mouse-ear	LRPR (2022)	08/2014	0.07	1
<i>Lathyrus nissolia</i>	Grass vetchling	LRPR (2022)	01/06/2019	0.09	6
<i>Oxalis acetosella</i>	Wood-sorrel	LRPR (2022)	11/03/2020	0.11	7
<i>Silene flos-cuculi</i>	Ragged-robin	LRPR (2022)	06/06/2019	0.11	3
<i>Euphorbia lathyris</i>	Caper spurge	CITES-B, GBNNSIP, LRPR (2022)	08/06/2021	0.12	7
<i>Euphrasia nemorosa</i>	Common eyebright	LRPR (2022)	05/08/2021	0.14	5
<i>Hypericum humifusum</i>	Trailing St John's-wort	LRPR (2022)	20/08/2019	0.15	3
<i>Medicago arabica</i>	Spotted medick	LRPR (2022)	05/03/2022	0.15	2
<i>Allium vineale</i>	Wild onion	LRPR (2022)	22/09/2019	0.18	6

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to Solar Development Site (km)	Number of records
<i>Veronica anagallis-aquatica</i>	Blue water-speedwell	LRPR (2022)	12/08/2019	0.18	2
<i>Cichorium intybus</i>	Chicory	GBNNSIP, LRPR (2022)	25/09/2023	0.18	12
<i>Calamagrostis canescens</i>	Purple small-reed	LBAP, LRPR (2022)	26/06/2017	0.22	4
<i>Aquilegia vulgaris</i>	Columbine	LRPR (2022)	25/09/2023	0.22	6
<i>Centaureum pulchellum</i>	Lesser centaury	LRPR (2022)	22/05/2019	0.25	1
<i>Jacobaea aquatica</i>	Marsh ragwort	LRPR (2022)	26/06/2017	0.26	4
<i>Ononis spinosa</i>	Spiny restharrow	LRPR (2022)	22/07/2017	0.31	1
<i>Carex pallescens</i>	Pale sedge	LRPR (2022)	06/06/2019	0.36	3
<i>Ranunculus trichophyllus</i>	Thread-leaved water-crowfoot	LRPR (2022)	20/03/2019	0.38	2
<i>Tilia cordata</i>	Small-leaved lime	LRPR (2022)	08/06/2021	0.39	7
<i>Platanthera chlorantha</i>	Greater butterfly-orchid	LRPR (2022)	07/06/2018	0.41	1
<i>Vicia sylvatica</i>	Wood vetch	LBAP, LRPR (2022)	03/07/2017	0.45	3
<i>Salvia verbenaca</i>	Wild clary	LRPR (2022)	15/06/2023	0.58	1
<i>Verbascum nigrum</i>	Dark mullein	LRPR (2022)	09/08/2014	0.58	2
<i>Foeniculum vulgare</i>	Fennel	GBNNSIP, LRPR (2022)	08/06/2021	0.60	2
<i>Centaurea cyanus</i>	Cornflower	BAP, GBNNSIP, LRPR (2022), S41	15/06/2023	0.67	1
<i>Spergularia rubra</i>	Sand spurrey	LRPR (2022)	16/06/2017	0.74	1
<i>Carex divulsa</i> subsp. <i>divulsa</i>	Grey sedge	LRPR (2022)	20/08/2019	0.80	4
<i>Coeloglossum viride</i>	Frog orchid	BAP, LRPR (2022), S41	20/05/2014	0.96	2
<i>Trifolium ochroleucon</i>	Sulphur clover	LRPR (2022)	01/08/2022	1.10	6
<i>Mercurialis annua</i>	Annual mercury	GBNNSIP, LRPR (2022)	08/06/2021	1.30	5
<i>Lotus tenuis</i>	Narrow-leaved bird's-foot-trefoil	LRPR (2022)	01/08/2022	1.47	11
<i>Cruciata laevipes</i>	Crosswort	LRPR (2022)	07/07/2016	1.52	1
<i>Hypochaeris glabra</i>	Smooth cat's-ear	LRPR (2022)	07/07/2021	1.52	2
<i>Lysimachia vulgaris</i>	Yellow loosestrife	LRPR (2022)	07/07/2016	1.52	1

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to Solar Development Site (km)	Number of records
<i>Mentha spicata</i>	Spear mint	GBNNSIP, LRPR (2022)	01/08/2022	1.52	3
<i>Rosa spinosissima</i>	Burnet rose	LRPR (2022)	07/07/2016	1.52	1
<i>Samolus valerandi</i>	Brookweed	LRPR (2022)	01/08/2022	1.52	4
<i>Schoenus nigricans</i>	Black bog-rush	LRPR (2022)	07/07/2016	1.52	1
<i>Scutellaria minor</i>	Lesser skullcap	LRPR (2022)	07/07/2016	1.52	1
<i>Valerianella carinata</i>	Keeled-fruited cornsalad	GBNNSIP, LRPR (2022)	15/06/2023	1.60	1
<i>Eleocharis uniglumis</i>	Slender spike-rush	LRPR (2022)	01/08/2022	1.69	1
<i>Agrostis canina</i>	Velvet bent	LRPR (2022)	07/07/2021	1.82	1
<i>Hippuris vulgaris</i>	Mare's-tail	LRPR (2022)	02/07/2019	1.87	2

Field study

- 4.6.1.2 It is important to note that the timing of the walkover survey for all parcels except from the north-east and south-west parcels were conducted outside the peak flowering and growth seasons. This may have limited the ability to accurately identify and record notable plant species. The intensive agricultural nature of the Solar Development Site means that the majority of habitats are unlikely to support notable or rare plant species. However, some higher value habitats may support notable flora and require re-survey in the optimal season.
- 4.6.1.3 Notable arable associate species that were identified throughout the Solar Development Site include chicory *Cichorium intybus* and sharp-leaved fluellen *Kickxia elatine* (Photograph 18), each listed on the Leicestershire Rare Plant Register.



Photograph 18: Sharp-leaved fluellen found throughout the Solar Development Site.

- 4.6.1.4 Higher-value habitats such as woodland, wood-pasture and parkland, as well as damp fields in the central north parcel, may have the potential to support notable flora. These areas require re-survey during the optimal season to ensure a comprehensive botanical assessment.
- 4.6.1.5 A defining feature of the Solar Development Site was the presence of several scattered veteran trees, predominantly comprising ash and oak (Photograph 19), and hawthorn to a lesser extent. Many of these trees exhibited features typical of veteran status, such as large girths, deadwood, and cavities, providing important ecological value. Some trees appeared to have been coppiced in the past, indicating historic management practices. Clusters of veteran trees were notably present within the aforementioned areas of wood-pasture and parkland. Additionally, individual veteran trees were noted within some of the hedgerows bordering agricultural land parcels. These veteran trees are key features of the Solar Development Site, contributing to its landscape character and ecological potential.



Photograph 19: Examples of veteran trees scattered throughout the Solar Development Site.

4.6.2 Amphibians

Desk study

4.6.2.1 Four amphibian species were returned from the desk study from within 2km of the Solar Development Site. Records of relevance are summarised in Table 7.

Table 7: Relevant amphibian species returned from the desk study.

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to Solar Development Site (km)	Number of records
<i>Rana temporaria</i>	Common frog	Bern3, HDir5, WCA5	19/03/2021	0	11
<i>Bufo bufo</i>	Common toad	BAP, Bern3, S41, WCA5	19/03/21	0	9
<i>Triturus cristatus</i>	Great crested newt	BAP, Bern2, CHS2, HDir2, HDir4, S41, WCA5	14/06/2021	0	23
<i>Lissotriton vulgaris</i>	Smooth newt	Bern3, WCA5	14/06/2021	0.28	12

Field study

4.6.2.2 During the site walkover, a common frog was observed within a wetland habitat present in the central north parcel.

4.6.2.3 The Solar Development Site contains multiple waterbodies surrounded by scrub and grassland, offering potential habitat for amphibian species, including great crested newt. Many of these waterbodies are unshaded and support significant macrophyte growth, which is suitable for egg laying (Photograph 20). Notable examples include the ponds within the damp field in the central north parcel, and those located in the central south parcel within arable fields. These features provide opportunities for breeding, while the surrounding grassland, scrub, and hedgerows offer suitable foraging and sheltering habitats.

4.6.2.4 The ponds described in the habitats section illustrate the potential value of these waterbodies for amphibians. For instance, the temporary ponds within the damp grassland and the more permanent waterbodies in the north, dominated by species such as jointed rush and soft rush, provide structural diversity and cover.



Photograph 20: A pond in the centre of the Solar Development Site representing high quality amphibian breeding habitat.

4.6.3 Badger

Desk study

4.6.3.1 The data search returned one record of badger within 2km of the Solar Development Site. This is summarised in Table 8.

Table 8: Relevant records of badger returned from the desk study.

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to Solar Development Site (km)	Number of records
Meles meles	Badger	Bern3, PBA	14/04/2024	0	105

Field study

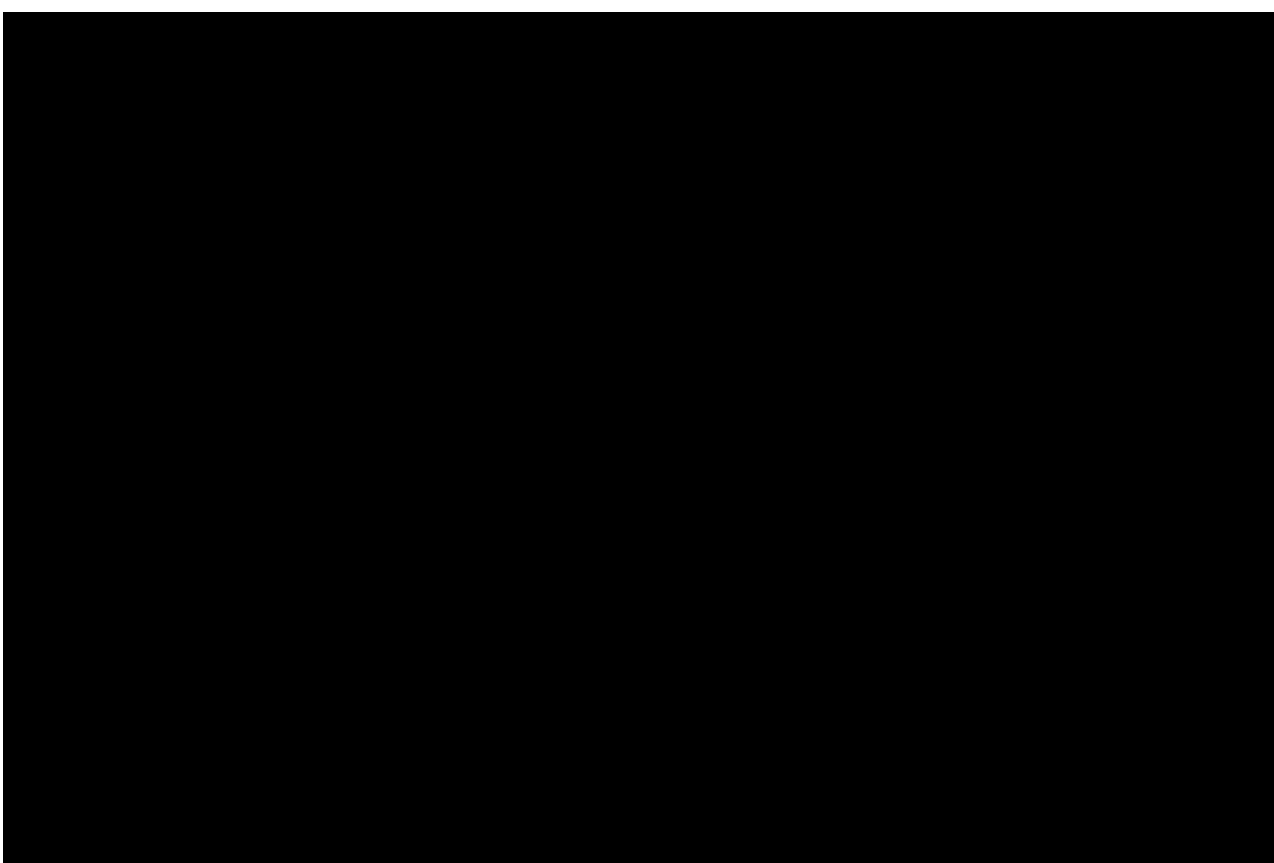
4.6.3.2 During field survey, numerous badger latrines and dung pits were identified across the Solar Development Site (Photograph 21), as well as badger tracks.



Photograph 21: Fresh badger latrine [REDACTED]

4.6.3.3 Numerous badger setts were identified throughout the Solar Development Site (Photograph 22), [REDACTED]

4.6.3.4 In addition to these main setts, numerous smaller setts and associated field signs were recorded throughout the survey area. The widespread presence of both main and subsidiary setts, along with evidence of territorial markings, indicates that badgers are relatively ubiquitous throughout the Solar Development Site , likely representing multiple social groups or clans. The Solar Development Site's habitats, including hedgerows and woodland areas, provide opportunity for sett construction and support a consistent food supply, indicating the Solar Development Site's suitability for badger.



Photograph 22: [REDACTED]

4.6.4 Bats

Desk study

4.6.4.1 Ten bat species were returned from the desk study from within 2km of the Solar Development Site, as well as some records which could not be distinguished to species level. Records of relevance are summarised in Table 9.

Table 9: Relevant bat species returned from the desk study.

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to Solar Development Site (km)	Number of records
Chiroptera	Bat	Bern2, Bonn2, CHS2, HDir4, LBAP, WCA5	02/07/2023	0.06	7
Myotis	Myotis bat species	Bern2, Bonn2, CHS2, HDir4, LBAP, WCA5	25/09/2021	0.06	10
Nyctalus	Nyctalus bat species	Bern2, Bonn2, CHS2, HDir4, WCA5	11/07/2019	0.06	1
Nyctalus noctula	Noctule	BAP, Bern2, Bonn2, CHS2, HDir4, LBAP, S41, WCA5	10/05/2022	0.06	20
Pipistrellus pipistrellus	Common pipistrelle	Bonn2, CHS2, HDir4, LBAP, WCA5	13/08/2021	0.06	42

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to Solar Development Site (km)	Number of records
Pipistrellus pygmaeus	Soprano pipistrelle	BAP, Bern2, Bonn2, CHS2, HDir4, LBAP, S41, WCA5	06/06/2022	0.06	23
Nyctalus leisleri	Leisler's bat	Bern2, Bonn2, CHS2, HDir4, LBAP, WCA5	13/08/2021	0.09	10
Pipistrellus	Pipistrelle bat species	Bern2, Bonn2, CHS2, HDir4, LBAP, WCA5	13/08/2021	0.09	5
Plecotus auritus	Brown long-eared bat	BAP, Bern2, Bonn2, CHS2, HDir4, LBAP, S41, WCA5	13/08/2021	0.09	20
Pipistrellus nathusii	Nathusius's pipistrelle	Bern2, Bonn2, CHS2, HDir4, WCA5	13/08/2021	0.13	2
Eptesicus serotinus	Serotine	Bern2, Bonn2, CHS2, HDir4, LBAP, WCA5	13/08/2021	0.22	2
Myotis daubentonii	Daubenton's bat	Bern2, Bonn2, CHS2, HDir4, LBAP, WCA5	05/07/2017	0.48	1
Myotis mystacinus/brandtii	Whiskered/Brandt's bat	Bern2, Bonn2, CHS2, HDir4, LBAP, WCA5	11/05/2017	0.48	1
Myotis nattereri	Natterer's bat	Bern2, Bonn2, CHS2, HDir4, WCA5	2019	1.94	1

Field study

- 4.6.4.2 Due to the predominantly agricultural nature of the Solar Development Site, much of the open habitat is largely unsuitable for bats. However, there are numerous mature and semi-mature trees scattered across the land parcels that offer suitable roosting opportunities. These include ash (Photograph 23), oak, and maple trees with features such as cavities, splits, and crevices that could support crevice or crack dwelling bat species. Several veteran and potential veteran trees were also noted, offering further roosting potential. In addition, there is a collection of old stone farm buildings in the south of the Solar Development Site which have potential for bat roosting.
- 4.6.4.3 Beyond roosting opportunities, there are habitats within the broader landscape which provide important commuting and foraging corridors for bats. Mature tree lines and hedgerows within the Solar Development Site act as linear features which enhance connectivity with large, mature woodlands in the wider landscape here are numerous mature tree and hedgerow lines towards the north of the Solar Development Site that may enhance connectivity with pockets of woodland such as Pickworth Great Wood and The Coppice, which are likely to be of high ecological value to bats.
- 4.6.4.4 Overall, while open fields may be of limited value to bats, the presence of suitable roosting trees, coupled with the interconnected network of hedgerows, and mature tree lines, significantly enhances the Solar Development Site's suitability for a range of bat species.



Photograph 23: A mature ash tree with bat roost potential in the north parcel

4.6.5 Birds

Desk study

4.6.5.1 Numerous bird species were returned from the desk study from within 2km of the Solar Development Site. Records of relevance are summarised in Table 10, with species of relevance defined as designated or protected species known to utilise habitats on and around the Site.

Table 10: Relevant bird species returned from the desk study

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to Solar Development Site (km)	Number of records
Luscinia megarhynchos	Nightingale	Bern2, LBAP, UKBR	26/04/2021	0	27
Pyrrhula pyrrhula	Bullfinch	BAP, S41, UKBA	13/09/2021	0	22
Alauda arvensis	Skylark	BAP, BDir2.2, S41, UKBR	02/07/2023	0	13
Milvus milvus	Red kite	BDir1, Bonn2, CITES-A, WCA1.1, WCA9	27/12/2022	0	76
Turdus pilaris	Fieldfare	BDir2.2, UKBR, WCA1.1	30/10/2023	0	10

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to Solar Development Site (km)	Number of records
<i>Tyto alba</i>	Barn owl	Bern2, CITES-A, LBAP, WCA1.1, WCA9	09/09/2022	0	4
<i>Coturnix coturnix</i>	Quail	BDir2.2, UKBA, WCA1.1	31/05/2020	0	7
<i>Fringilla montifringilla</i>	Brambling	WCA1.1	16/02/2022	0	1
<i>Passer montanus</i>	Tree sparrow	BAP, S41, UKBR	29/10/2021	0.01	2
<i>Apus apus</i>	Swift	LBAP, UKBR	28/07/2022	0.12	7
<i>Acanthis cabaret</i>	Lesser redpoll	BAP, S41	28/10/2022	0.12	4
<i>Cuculus canorus</i>	Cuckoo	BAP, S41, UKBR	14/05/2022	0.12	24
<i>Delichon urbicum</i>	House martin	Bern2, LBAP, UKB	19/06/2020	0.12	6
<i>Emberiza citronella</i>	Yellowhammer	BAP, Bern2, S41, UKBR	02/07/2023	0.12	21
<i>Hirundo rustica</i>	Swallow	Bern2, LBAP	19/06/2020	0.12	7
<i>Poecile palustris</i>	Marsh tit	BAP, Bern2, S41, UKBR	15/01/2017	0.12	26
<i>Prunella modularis</i>	Dunnock	BAP, Bern2, S41, UKBA	29/04/2021	0.12	12
<i>Sturnus vulgaris</i>	Starling	BAP, BDir2.2, S41, UKBR	27/12/2022	0.12	5
<i>Turdus philomelos</i>	Song thrush	BAP, BDir2.2, S41, UKBA	01/05/2023	0.12	37
<i>Falco peregrinus</i>	Peregrine	BDir1, Bern2, Bonn2, CITES-A, WCA1.1	09/03/2021	0.12	3
<i>Falco subbuteo</i>	Hobby	Bern2, Bonn2, CITES-A, WCA1.1	18/07/2021	0.12	2
<i>Turdus iliacus</i>	Redwing	BDir2.2, UKBA, WCA1.1	09/12/2022	0.12	7
<i>Falco columbarius</i>	Merlin	BDir1, Bern2, Bonn2, CITES-A, UKBR, WCA1.1	17/02/2022	0.12	3
<i>Passer domesticus</i>	House sparrow	BAP, S41, UKBR	27/12/2022	0.14	3
<i>Linaria cannabina</i>	Linnet	BAP, Bern2, S41, UKBR	11/10/2022	0.28	11
<i>Emberiza calandra</i>	Corn bunting	BAP, S41, UKBR	14/07/2021	0.35	11

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to Solar Development Site (km)	Number of records
<i>Emberiza schoeniclus</i>	Reed bunting	BAP, Bern2, S41, UKBA	11/10/2022	0.35	5
<i>Motacilla flava</i>	Yellow wagtail	BAP, Bern2, S41, UKBR	18/09/2020	0.35	2
<i>Perdix perdix</i>	Grey partridge	BAP, BDir2.1, GBNSIP, S41, UKBR	08/05/2015	0.35	9
<i>Vanellus vanellus</i>	Lapwing	BAP, BDir2.2, Bonn2, S41, UKBR	09/12/2022	0.35	6
<i>Streptopelia turtur</i>	Turtle dove	BAP, BDir2.2, CITES-A, S41, UKBR	24/05/2014	0.39	1
<i>Phoenicurus phoenicurus</i>	Redstart	Bern2, LBAP, UKBA	04/08/2015	0.79	1

Field study

4.6.5.2 During the PEA site walkover, the following bird species were observed through either sight or sound:

- Barn owl - carcass observed next to a potential roost in the northeast parcel (see target note 24, Table 5);
- Black headed gull *Chroicocephalus ridibundus*;
- Blackbird *Turdus merula*;
- Blue tit *Cyanistes caeruleus*;
- Buzzard *Buteo buteo*;
- Coal tit *Periparus ater*;
- Goldfinch *Carduelis carduelis*;
- Greenfinch *Chloris*;
- Grey partridge *Perdix perdix*;
- Kestrel *Falco tinnunculus*;
- Linnet *Linaria cannabina*;
- Long-tailed tit *Aegithalos caudatus*;
- Merlin *Falco columbarius*;
- Mistle thrush *Turdus viscivorus*;
- Red kite *Milvus milvus*;
- Red-legged partridge *Alectoris rufa*;
- Reed bunting *Emberiza Schoeniclus*;
- Snipe *Gallinago gallinago*;
- Stock dove *Columba oenas*;
- Treecreeper *Certhiidae*;

- Woodpigeon *Columba palumbus*;
- Wren *Troglodytidae*;
- Yellowhammer *Emberiza citronella*; and
- Skylark *Alauda arvensis*.

- 4.6.5.3 The extensive agricultural landscape provides likely nesting and foraging habitat for ground-nesting birds, such as skylark and red-legged partridge. Open arable fields, winter stubble, and margins offer seeds and invertebrates that sustain these farmland birds. Several hundred woodpigeons were seen roosting in winter stubble within the northeast parcel, and large flocks of black-headed gull were observed loafing throughout, indicating the attractiveness of open fields as feeding and resting areas for a range of species. Further notable species such as lapwing or golden plover may utilise such open fields as winter roosts.
- 4.6.5.4 The mosaic of hedgerows and mature tree lines throughout the Solar Development Site were identified as important linear features, providing both nesting and foraging opportunities for a range of passerines, including yellowhammer, linnet, warblers, finches, and tit species.
- 4.6.5.5 During the survey, snipe were flushed from the cluster of temporary pools identified in the central north section of the Solar Development Site, with the landowner further reporting this field is utilised by large numbers of woodcock *Scolopax rusticola*.
- 4.6.5.6 Woodland areas on the borders of the Solar Development Site, as well as large adjacent woodland blocks (e.g., Pickworth Great Wood), offer shelter and food resources for a broad range of bird species. Pickworth Great Wood, located immediately north of the northern section of the Solar Development Site is recognised as suitable habitat for red kite nesting and foraging (Photograph 24). Pickworth Great Wood was also reported by landowners as being utilised by breeding nightingale *Luscinia megarhynchos* and goshawk *Accipiter gentilis*, which would be two species of particular ecological interest if confirmed to be present.



Photograph 24: Pickworth Great Wood lies north of the Solar Development Site and has potential for several bird species including Red kite

- 4.6.5.7 Evidence of barn owl presence was identified at multiple points within and around the Solar Development Site. A barn owl carcass was found within a potential roost feature in the north parcel, indicating that this area has recently supported, or continues to support, barn owl activity. Several large mature trees were noted with splashing and/or pellets, all suggesting that these features may serve as resting or roosting locations. Additionally, two well-maintained barn owl boxes were recorded in the north parcel, one located in the east (box number 10716) and another towards the southern extent (unidentifiable) (Photograph 25). Within the southern parcel, there are a collection of old stone farm buildings that also present roost and nesting potential for this species.
- 4.6.5.8 The combination of suitable natural and artificial nesting/ roosting sites, coupled with foraging habitat in rough grassland strips, indicates that the Solar Development Site and its immediate surroundings provide suitability for barn owls.



Photograph 25: A barn owl box found in the northeast parcel which appeared to not be in use

4.6.5.9 Wintering bird surveys were commissioned for the 2024-2025 season. Arup completed monthly diurnal and nocturnal wintering bird surveys at the Solar Development Site from November 2024 to March 2025 to record the species, distributions, and numbers of non-breeding birds present in the survey area, which did not include the north-east and south-west parcel as these were added to Solar Development Site area following completion of the survey programme. The north-east and south-west land parcels will be surveyed as part of the 2025/ 26 survey programme. This is considered as sufficient due to the preliminary results of surveys on nearby land parcels. A total of 63 species were recorded within or flying over the Solar Development Site during the surveys. Of these 63 species, a total of 37 species were identified as being 'notable'. The notable species records include the following:

- 2 species listed on the Rutland Water SPA citation;
- 6 WCA Schedule 1 species;
- 12 species listed as Section 41 SPI;
- 15 species on the Red List Birds of Conservation Concern (BoCC); and
- 19 species on the Amber List BoCC.

4.6.5.10 Results of the wintering bird surveys will be presented in the Wintering Bird Survey Report, which will accompany the Application.

4.6.5.11 Overall, the Solar Development Site and the surrounding landscape provide a variety of habitats that cater to a broad assemblage of bird species. The mature trees, old buildings, large woodlands, cropland, wetlands and riparian corridors have the potential to provide nesting and foraging opportunities for a variety of notable species throughout the year.

4.6.6 Fish

4.6.6.1 Four bony fish species were returned from the desk study from within 2km of the Solar Development Site. Records of relevance are summarised in Table 11.

Table 11: Relevant records of bony fish from the desk study

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to Solar Development Site (km)	Number of records
Anguilla anguilla	Eel	BAP, S41	12/05/2015	0.26	18
Salmo trutta	Brown/Sea trout	BAP, S41	12/05/2015	0.26	18
Thymallus thymallus	Grayling	Bern3, CHS4, HDir5	02/11/2015	0.26	12
Carassius auratus	Goldfish	GBNNSIP, INNS	24/03/2021	0.38	2

Field survey

4.6.6.2 The scattered ponds found throughout the Solar Development Site are predominantly small and/or ephemeral. As a result, these ponds are unlikely to support notable fish populations or establishment of future populations.

4.6.7 Other notable mammals (SPI)

Desk study

4.6.7.1 Records of two mammal SPI not summarised elsewhere were returned from within 2km of the Solar Development Site, as shown in Table 12.

Table 12: Relevant records of other notable mammals returned from the desk study

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to Solar Development Site (km)	Number of records
Lepus europaeus	Hare	BAP, S41	30/10/2023	0	126
Erinaceus europaeus	Hedgehog	BAP, Bern3, S41	13/04/2023	0	4

4.6.7.2 There is one record of hazel dormice in Pickworth Wood, adjacent to the north parcel of the Solar Development Site. No evidence of dormice was noted in the field survey. There is potential suitable habitat for hazel dormice within the Solar Development and immediately adjacent, including woodland and hedgerows. As the Proposed Development will retain all woody habitats (including scattered trees and hedgerows) with a buffer from these features, any potential impact on hazel dormice is likely to be negligible and is therefore not considered further in the report.

Field study

4.6.7.3 Due to the arable nature of the Solar Development Site, it is likely that the Solar Development Site is not suitable for most mammals of principal importance, although these species may occur transiently throughout. The exception to this is brown hare, which was recorded frequently throughout the entirety of the Solar Development Site. The long vegetation within arable areas and long grassland verges bordering the majority of fields are likely to provide foraging habitats for brown hare and, overall, the Solar Development Site has the potential to support a significant population of this species.

4.6.8 Invertebrates

Desk study

4.6.8.1 Numerous invertebrate species were returned from the desk study from within 2km of the Solar Development Site. Records of relevance are summarised in Table 13.

Table 13: Relevant records of invertebrates returned from the data search

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to Solar Development Site (km)	Number of records
<i>Harmonia axyridis</i>	Harlequin ladybird	GBNNSIP, INNS	16/06/2021	0	7
<i>Coenonympha pamphilus</i>	Small heath	BAP, S41	09/08/2023	0	46
<i>Erynnis tages</i>	Dingy skipper	BAP, LBAP, S41	20/05/2024	0	100
<i>Pyrgus malvae</i>	Grizzled skipper	BAP, LBAP, S41	01/05/2023	0	76
<i>Apatura iris</i>	Purple emperor	WCA5	18/07/2021	0	12
<i>Polyommatus coridon</i>	Chalk hill blue	WCA5	07/08/2014	0	12
<i>Acronicta psi</i>	Grey dagger	BAP, S41	24/08/2022	0	1
<i>Amphipyra tragopoginis</i>	Mouse moth	BAP, S41	05/08/2020	0	1
<i>Atethmia centrago</i>	Centre-barred sallow	BAP, S41	28/08/2022	0	1
<i>Brachylomia viminalis</i>	Minor shoulder-knot	BAP, S41	25/07/2015	0	2
<i>Caradrina morpheus</i>	Mottled rustic	BAP, S41	13/07/2022	0	3
<i>Ecliptopera silaceata</i>	Small phoenix	BAP, S41	31/07/2022	0	1
<i>Ennomos fuscantaria</i>	Dusky thorn	BAP, S41	28/08/2022	0	1
<i>Hoplodrina blanda</i>	Rustic	BAP, S41	25/07/2015	0	2
<i>Malacosoma Neustria</i>	Lackey	BAP, S41	15/06/2022	0	2
<i>Scotopteryx chenopodiata</i>	Shaded broad-bar	BAP, S41	13/07/2022	0	48

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to Solar Development Site (km)	Number of records
<i>Spilosoma lubricipeda</i>	White ermine	BAP, S41	15/06/2022	0	1
<i>Timandra comae</i>	Blood-vein	BAP, S41	15/06/2017	0	1
<i>Tyria jacobaeae</i>	Cinnabar	BAP, S41	02/07/2023	0	14
<i>Diarsia rubi</i>	Small square-spot	BAP, S41	28/08/2022	0	1
<i>Spilosoma lutea</i>	Buff ermine	BAP, S41	25/07/2015	0	1
<i>Allophyes oxyacanthae</i>	Green-brindled crescent	BAP, S41	16/10/2020	0	2
<i>Xanthorhoe ferrugata</i>	Dark-barred twin-spot carpet	BAP, S41	31/07/2022	0	1
<i>Chiasmia clathrata</i>	Latticed heath	BAP, S41	31/07/2022	0	5
<i>Litoligia literosa</i>	Rosy minor	BAP, S41	05/08/2020	0	1
<i>Tholera decimalis</i>	Feathered gothic	BAP, S41	04/09/2020	0	1
<i>Trichiura crataegi</i>	Pale eggbar	BAP, S41	28/08/2022	0	3
<i>Satyrrium w-album</i>	White-letter hairstreak	BAP, S41, WCA5	13/07/2019	0.13	6
<i>Hemistola chrysoprasaria</i>	Small emerald	BAP, S41	25/07/2015	0.31	1
<i>Macaria wauaria</i>	V-moth	BAP, S41	25/07/2015	0.92	2

Field study

4.6.8.2 Due to the majority of habitats comprising intensive agricultural land, the Solar Development Site is generally unlikely to support protected or notable species of invertebrates. However, there are some areas that are of higher value to invertebrates:

- The deadwood features of the many mature and veteran trees found throughout, including numerous veteran trees may essential habitat for notable saproxylic invertebrates.
- The wetland habitats present in the central north parcel may offer valuable habitats for aquatic invertebrates.
- Several of the temporary and permanent waterbodies scattered throughout may provide resources for a range of invertebrates.
- Hedgerows, scrub, and woodland bordering the Solar Development Site, in contrast to the intensively farmed fields, are structurally complex habitats that can support a variety of terrestrial invertebrates. The desk study identified several notable invertebrate species that could potentially occur within these higher-value habitats. This includes species such as purple emperor and white-letter hairstreak.

- 4.6.8.3 Overall, while the predominantly arable landscape offers limited opportunities for notable invertebrate assemblages, the presence of deadwood in veteran trees, and varied wetland features offer some potential value to a range of notable invertebrate species.

4.6.9 Reptiles

Desk study

- 4.6.9.1 Three reptile species were returned from the desk study from within 2km of the Solar Development Site. Records of relevance are summarised in Table 14.

Table 14: Relevant records of reptile species from the desk survey

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to Solar Development Site (km)	Number of records
<i>Zootoca vivipara</i>	Common lizard	BAP, Bern3, S41, WCA5	01/05/2023	0	30
<i>Natrix Helvetica</i>	Grass snake	BAP, Bern3, S41, WCA5	30/07/2021	0	9
<i>Anguis fragilis</i>	Slow worm	BAP, Bern3, S41, WCA5	02/07/2014	0.71	1

Field study

- 4.6.9.2 The Solar Development Site is of limited suitability to support reptiles. The majority of grassland habitat were of relatively short agricultural use and there were limited scrublands and woodland habitat to provide sheltering and foraging habitat.
- 4.6.9.3 Also notable is the very high density of pheasants across the Solar Development Site. While this does not preclude the presence of reptiles on site, presence of such density pheasants acts as a significant limiting factor, due to predation.

4.6.10 Otter

Desk study

- 4.6.10.1 One record of otter was returned from the desk study from within 2km of the Solar Development Site. Records of relevance are summarised in Table 15.

Table 15: Relevant records of otter species from the desk survey

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to Solar Development Site (km)	Number of records
<i>Lutra lutra</i>	Otter	BAP, Bern2, CHS2, CITES-A, HDir2, HDir4, LBAP, S41, WCA5	09/03/2019	0.13	3

Field study

- 4.6.10.2 No direct evidence of otter presence, such as spraints, footprints, or feeding remains, was recorded during the site walkover. The inundated ditches and small ephemeral waterbodies scattered throughout the Solar Development Site offer limited value for otter. Their lack of permanent water, poor connectivity to the main river system, and consequent restricted prey availability make these features less likely to support regular otter activity. As such, it is seen as unlikely that otters are utilising the Solar Development Site at this time.

4.6.11 Water vole

Desk study

4.6.11.1 The desk study returned one record of water vole from within 2km of the Solar Development Site. Records of relevance are summarised in Table 16.

Table 16: Relevant records of water vole from the desk survey

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to site (km)	Number of records
<i>Arvicola amphibius</i>	Water vole	BAP, Bern2, CHS2, CITES-A, HDir2, HDir4, LBAP, S41, WCA5	09/03/2017	0.84	1

Field study

4.6.11.2 No direct field signs of water vole such as feeding stations, latrines, or burrows were recorded during the Solar Development Site walkover. The majority of the Solar Development Site is dominated by intensively managed agricultural land and ephemeral water features, conditions generally unsuitable for sustaining water vole populations.

4.6.11.3 Within the Solar Development Site, suitable conditions are largely limited to a few permanently wet ditches. The intermittent and poorly connected nature of most aquatic features on site (such as inundated ditches and small, ephemeral water bodies) restricts their value for water voles.

4.6.12 Invasive non-native species

4.6.12.1 The desk study returned records of four invasive non-native species, summarised in Table 17.

Table 17: Notable and relevant invasive and non-native species found within 2km of the Solar Development Site.

Scientific name	Common name	Designation summary	Date of most recent record	Closest distance to Solar Development Site (km)	Number of records
<i>Muntiacus reevesi</i>	Muntjac	Bern3, GBNNSIP, INNS, WCA9	2021	0	22
<i>Rosa rugosa</i>	Japanese rose	GBNNSIP, INNS, WCA9	2023	0	3
<i>Crassula helmsii</i>	New Zealand Pigmyweed	GBNNSIP, INNS, WCA9	2023	0	3
<i>Impatiens glandulifera</i>	Himalayan Balsam	GBNNSIP, INNS, WCA9	2023	0.81	1

Field study

4.6.12.2 New Zealand Pigmyweed, a Schedule 9 invasive plant species was identified during the site walkover in the northern parcel (Photograph 26). The species covered almost all areas of a temporary water body found within a portion of shrub between two arable fields.



Photograph 26: New Zealand pygmyweed identified in the north parcel

- 4.6.12.3 Muntjac deer was observed several times during the site walkover, typically along hedgerows and at the edges of woodland habitats. These areas provide suitable cover and foraging opportunities for the species.
- 4.6.12.4 Further invasive species are likely to be present within the Solar Development Site, with further survey during the optimal flowering period required in order to confidently identify and map them.

5. Ecological constraints and opportunities

- 5.1.1.1 As discussed in **Section 1: Introduction**, the Proposed Development is likely to comprise the installation of solar (PV) panels, cable trenching and installation, and associated construction compounds and access tracks required during construction and decommissioning of the Proposed Development. The placement, scale, and potential interaction with surrounding habitat of the infrastructure proposed is not yet defined. As such, the assessment of potential impacts and resulting recommendations are correspondingly broad, to ensure applicability to all potential design scenarios during design development.
- 5.1.1.2 This section includes some likely avoidance and mitigation measures to be employed prior to and during construction and any recommendations for further survey, based on the field appraisal and information taken from the desk study.

5.2 Constraints

5.2.1 Designated sites

- 5.2.1.1 Rutland Water Ramsar, SPA and SSSI, located 3.5km south-west of the Solar Development Site, is internationally significant for its bird populations. These bird populations may (or may not) use parts of the Solar Development Site as functionally linked land (FLL) for roosting and foraging. Any loss or degradation of FLL has the potential to indirectly impact the designating features of the Rutland Water Ramsar/ SPA.
- 5.2.1.2 Bloody Oaks Quarry SSSI, and Clipsham Old Quarry and Pickworth Great Wood SSSI, are located immediately adjacent or in close proximity to the Solar Development Site and could be indirectly affected by the Proposed Development through issues such as dust, noise, or changes in hydrology generated during construction. Given the proximity of these designated sites, mitigation measures may be necessary to safeguard these sites' ecological and geological features.
- 5.2.1.3 There are a number of LWS that are also directly adjacent or in close proximity to the Solar Development Site. Potential impacts could include habitat loss or degradation, fragmentation, and species displacement. Due to their proximity, these sites require careful consideration to prevent direct or indirect effects during and after construction/ decommissioning of the Proposed Development.

5.2.2 Habitats and flora

- 5.2.2.1 A range of HPI are present within or surrounding the Solar Development Site which have potential to be impacted by development during construction/ decommissioning activities, both through direct and indirect impacts. Depending on the scale and location of the development, these habitats could face both direct damage from land take and indirect effects, such as dust deposition, hydrological changes, or pollution.
- 5.2.2.2 Grassland habitats including lowland calcareous grassland, lowland meadows, and purple moor grass and rush pasture can be susceptible to damage from soil compaction, and dust deposition during construction. Alterations to hydrology or nutrient levels, as well as pollution from runoff, can further degrade these habitats.
- 5.2.2.3 Wetland habitats including ponds, lakes, lowland fens and watercourses are particularly vulnerable to sedimentation, and pollution resulting from nearby construction activities. Any hydrological alterations, such as changes or contamination of water tables, can impair water quality and reduce the ecological function of these wetlands.

- 5.2.2.4 Habitats such as Deciduous Woodland and Wood-Pasture and Parkland face potential losses through tree removal, soil compaction, or the severing of root systems by heavy machinery. Fragmentation of these habitats can reduce connectivity for wildlife and lead to further declines in biodiversity.
- 5.2.2.5 Veteran trees scattered all throughout the Solar Development Site provide irreplaceable habitat features and play a significant role in supporting a wide variety of species. These trees represent a key ecological feature of the Solar Development Site and may be vulnerable to root damage, soil compaction, and changes in local hydrology as a result of construction activities.
- 5.2.2.6 Mitigation measures should aim to minimise habitat loss and preserve ecological integrity, with enhancements considered where possible to offset any unavoidable impacts and deliver additional benefits.

5.2.3 Protected and notable species

- 5.2.3.1 Those species discussed in Section 4.6 which are omitted in this section are not considered likely to be significantly impacted by the Proposed Development.

Amphibians

- 5.2.3.2 Habitats on site, specifically ponds with surrounding suitable terrestrial habitat and scrub, primarily within the northern and central north section of the Solar Development Site, provide suitable habitat for amphibian species. As such, the Proposed Development may impact on amphibians utilising the Solar Development Site, through disturbance, direct habitat loss, or direct mortality and injury through construction.

Badger

- 5.2.3.3 Confirmed badger setts and latrines were identified in various areas of the Solar Development Site, suggesting the presence of multiple clans situated across the study area. Habitats on site, including hedgerow and areas of woodland and longer grassland, are suitable for badger, providing opportunities for sett building and foraging. As such, the Proposed Development may impact on badger utilising the Solar Development Site through disturbance during construction/ decommissioning, or direct habitat loss or severance and/ or sett loss.

Bats

- 5.2.3.4 Many of the mature and potentially veteran trees on site are suitable for roosting bats. Hedgerow and grassland margins are likely to attract invertebrates which in turn may provide valuable foraging resource for various bat species. The general lack of light pollution within the Solar Development Site could also facilitate this being suitable commuting habitat. As such, there is potential for the Proposed Development to impact on bats either through loss of habitat, particularly in the form of roosts, or noise and light disturbance during all phases of the Proposed Development.

Birds

- 5.2.3.5 Multiple species of notable bird were either heard or seen during the site walkover. Additionally, multiple notable bird species were recorded during the wintering bird surveys in the 2024/ 2025 winter season. Various habitats on site including hedgerow, trees, woodland, cropland and wetland areas are suitable for a range of wintering and breeding bird species of conservation concern, including barn owl and other raptor species, as well as smaller passerines. Non-cereal cropland on site is suitable for ground-nesting birds including skylark, a UK Farmland Bird Indicator and Red List species. Additionally, the presence of species such as the red kite, merlin, and yellowhammer highlights the Solar Development Site's importance for both breeding and wintering bird populations.
- 5.2.3.6 Some bird species utilising the Solar Development Site are at risk of displacement through (arable) habitat loss, and/ or disturbance during construction/ decommissioning. Equally, enhanced hedgerow and grassland habitats during the operational phase and in the longer term may improve conditions for certain other bird species.

Brown hare

- 5.2.3.7 The woodland, hedgerow and grassland margins provide high suitability for brown hare, which was observed to utilise all land parcels within the Solar Development Site. There is potential for hare to be impacted by development through disturbance, loss of habitat, and direct mortality during construction/ decommissioning.

Reptiles

- 5.2.3.8 The Solar Development Site has low suitability for reptile species due to its low prevalence of suitable habitats which also feature poor landscape connectivity. While there are some scattered areas of appropriate habitat, such as scrubby hedgerows for shelter and small patches of grassland for basking, these features are generally isolated and lack continuity.

Water vole

- 5.2.3.9 There is limited high value water vole habitat within the Solar Development Site. The ponds across the Solar Development Site are generally too isolated and shaded to support water vole populations. As such, there are no significant constraints arising from this receptor.

Invertebrates

- 5.2.3.10 While the majority of the Solar Development Site comprises arable land with limited habitat value, certain features within the Solar Development Site such as mature and veteran trees, wetland habitats, and semi-natural habitats along field margins have potential for supporting notable invertebrate assemblages. Construction/ decommissioning activities have the potential to negatively affect some of these habitats through direct habitat removal, pollution, and disturbance, as well as by altering local hydrological regimes. Removing or damaging deadwood features, such as those found in the veteran trees scattered throughout the Solar Development Site, could result in the loss of unique microhabitats. Wetlands in the north parcel together with a number of temporary and permanent waterbodies, may support notable aquatic invertebrates. These habitats could be degraded by sedimentation or changes in water levels if construction/ decommissioning works lead to polluted runoff or direct encroachment.

Fish

- 5.2.3.11 Buffer zones should be utilised for any water bodies on site to minimise the risk of negative impacts through disturbance, pollution, or change of hydrological state to waterbodies, which may indirectly impact fish within these features.

Invasive species

- 5.2.3.12 New Zealand pygmyweed was recorded within the Solar Development Site and is a notable INNS. Additionally, there may be further INNS present that were not observed because they were not visible at the time of the survey. Further survey during the optimal period is required to identify the presence of INNS.
- 5.2.3.13 Construction activities should follow best-practice techniques to avoid inadvertent spread of INNS. This includes regular thorough decontamination of equipment, PPE and machinery, alongside strict controls on soil and debris movement to avoid transferring invasive propagules from one location to another. A bespoke INNS management plan prepared by a specialist subcontractor is likely to be required where INNS cannot be reasonably avoided.

5.3 Opportunities

- 5.3.1.1 Enhancement of existing, retained habitats and creation of new, higher biodiversity value habitats should be prioritised to maximise ecological value across the Solar Development Site. These improvements should target notable and protected species that are likely to utilise the Solar Development Site, as well as those identified through the desk study as being present in the

surrounding area. Opportunities to deliver 10% BNG or additional environmental benefits can maximise the positive impacts of the Proposed Development.

5.3.1.2 This could be achieved through measures such as:

- The non-cereal cropland to be used for the installation of PV panels presents a significant opportunity for habitat enhancement through the establishment of species-rich grasslands beneath and around panels. This measure would substantially increase floral diversity and provide ecological benefits, contributing to wider biodiversity goals.
- Existing ponds, particularly those within the wet field within the north and central north parcels containing four temporary ponds, offer potential for ecological enhancement. Measures should focus on enhancing existing conditions such as a reduction in shading and diversifying the surrounding grassland. This will help enhance their suitability for supporting a wide range of species. Targeted pond creation throughout the Solar Development Site could further benefit avian species such as snipe and woodcock, known to forage in this area, as well as amphibians and aquatic invertebrates.
- All boundary hedgerows across the Solar Development Site bordering the PV panels should be managed and enhanced to maximise their biodiversity value. This may include infilling gaps with native shrub and tree species to improve habitat connectivity and structural diversity, combined with a wildlife friendly, rotational cutting regime to maintain height and width. Enhanced hedgerows would support a range of species dependent on these habitats for nesting and foraging.
- Veteran trees scattered across the Solar Development Site represent a key ecological and historical feature. Protective measures and active management, such as removal of competing vegetation, appropriate pruning and maintaining a protective buffer from livestock and/ or machinery should be implemented to extend their lifespan and maintain their ecological functionality. Additionally, veteranisation of younger trees could be considered as a long-term enhancement measure.
- Standing water habitats in the northern section of the Solar Development Site, currently dominated by the invasive New Zealand pygmyweed, require active management to reduce the presence of this species and promote native plant diversity. Enhancements could include improving hydrological conditions to create a more ecologically valuable aquatic habitat and improved management practices.
- Off-site enhancement opportunities include the possibility of contributing to the improved condition of adjacent designated sites, such as Bloody Oaks Quarry SSSI, and/ or Clipsham Old Quarry and Pickworth Great Wood SSSI.
- Furthermore, given the Solar Development Site's proximity to internationally important designated site Rutland Water, consideration could be given to improving the Solar Development Site for each of the specific receptors identified within the Ramsar, SPA and SSSI designation, including wintering birds, breeding birds, waterbirds, wetland plant assemblages, and wetland invertebrate assemblage. Any actions designed to positively impact the Ramsar, SPA and SSSI site should be developed in close collaboration with Natural England.

5.3.1.3 Overall, the Proposed Development offers substantial opportunities for biodiversity enhancement across the Solar Development Site. By prioritising habitat creation, targeted management, and integration of ecological features into the development design, the Solar Development Site can achieve meaningful net gains in biodiversity. These measures will not only mitigate potential impacts of the Proposed Development but also contribute to long-term ecological resilience and landscape connectivity.

6. Conclusions and recommendations

6.1 Conclusions

- 6.1.1.1 The detailed desk study and initial field surveys conducted at the Solar Development Site have identified the presence of numerous biodiversity receptors which are relevant ecological features to the Proposed Development.
- 6.1.1.2 Nationally and internationally designated sites are present within the study area for the Solar Development Site, which have potential to be impacted by the Proposed Development, during construction, operation and decommissioning.
- 6.1.1.3 Numerous protected and/ or notable flora and fauna have been identified as present or likely present within the Solar Development Site and its surrounds, including birds of conservation concern (such as barn owl, woodcock and snipe, as well as those which form designating criteria for Rutland Water SPA/ Ramsar), as well as badger, amphibians, bats, brown hare, otter, water vole, fish, invertebrates and veteran trees. Many of the habitats and species identified have the potential to be impacted by the Proposed Development, primarily through change of land use leading to loss of habitat and foraging resource, as well as potential impacts of disturbance during construction/ decommissioning.
- 6.1.1.4 At this early stage of the design process, consideration should be given to ecological features and constraints in deciding on the placement and scale of solar arrays within the design. Recommendations are given with the assumption that they can be further adapted and tailored to plans as they develop. Where residual risks to specific ecological receptors/ relevant ecological features remain following implementation of embedded mitigation, further survey is required to determine the presence or likely absence of several of these species and to inform assessment of importance of assemblages, therefore further guiding design through appropriate avoidance, mitigation, and enhancement measures.
- 6.1.1.5 Application of the mitigation hierarchy should be undertaken throughout the detailed design of the Proposed Development in order to minimise the potential impacts, consequently allowing a greater likelihood of delivering overall enhancement to key ecological receptors identified.
- 6.1.1.6 Whilst the Proposed Development has the potential to impact a wide range of receptors, there is also significant potential for ecological enhancement through targeted actions to improve current available resource for both flora and fauna, including enhancing existing habitat, and creation of new habitat, as well as the inclusion of features to support species utilising the Solar Development Site.

6.2 Recommendations

6.2.1 Overview

- 6.2.1.1 As noted in Section 3.2, the detailed desk study presented in this PEA reflects records of protected/ notable species within the Solar Development Site and within a 2km study area only obtained from LRERC in 2025. Within this PEA, only presence of/ distances to statutory and non-statutory designated sites (where available) has been considered as a broad constraint in relation to the Grid Cable Route Search Area.
- 6.2.1.2 Additional desk study searches including procurement of habitat and protected/ notable species records within 1km of the Grid Cable Route Search area will be undertaken in order to inform the ongoing optioneering studies for the Grid Connection Cables and refinement of the Grid Cable Route Search Area. The existing desk study will be updated to reflect these records, and they will be used to inform the need for subsequent targeted field surveys to determine the baseline conditions for protected and notable species within the Grid Cable Route Search Area prior to submission of the Application.

6.2.2 Designated sites

- 6.2.2.1 The Proposed Development should be designed with consideration to nearby designated sites. For the Solar Development Site, Blood Oaks Quarry SSSI, Clipsham Old Quarry and Pickworth Great Wood SSSI, mitigation measures should be implemented to minimise these risks, such as the use of dust suppression techniques, noise reduction strategies, and careful monitoring of hydrological changes.
- 6.2.2.2 Noise, air, light and water pollution should be minimised during all phases of the Proposed Development, where relevant, to minimise the potential for impacts on designated sites.
- 6.2.2.3 Loss of suitable habitat for bird species within the Solar Development Site including hedgerow, mature trees, and woodland should be avoided as far as reasonably practicable, as this may represent FLL for Rutland Water Ramsar/ SPA site. Given the proximity and potential ecological connections to Rutland Water SPA/ Ramsar site (as well as other international designated sites within the study area), a Habitats Regulations Assessment (HRA) will be required to accompany the Application. Detailed surveys are required to assess bird usage of the Solar Development Site, determine any linkage with Rutland Water SPA/ Ramsar site and inform the development of appropriate mitigation measures, where required.

6.2.3 Habitats

- 6.2.3.1 Loss of mature trees, broadleaved woodland, ponds, and native hedgerow should be avoided as far as reasonably practicable and appropriate buffer zones placed around them during construction/ decommissioning phases. Veteran trees scattered throughout the Solar Development Site require particular consideration as these are irreplaceable habitats.
- 6.2.3.2 Additional freshwater water bodies should be considered for the Solar Development Site to increase resource for amphibian species, birds, and semi-aquatic species.
- 6.2.3.3 A suitably qualified ecologist should be consulted from the initial design stages so that the proposed planting proposals and landscaping features maximise ecological value in terms of species type, diversity and structure. All habitats and species proposed should be native, or species of known value to local wildlife, drought tolerant, and be able to withstand conditions predicted within Leicestershire and Rutland during the lifetime of the Proposed Development. This is likely to be affected by the increasing temperatures and extreme weather conditions associated with climate change.

6.2.4 Birds

- 6.2.4.1 Loss of suitable habitat for breeding and wintering bird species within the Solar Development Site including hedgerow, mature trees, and woodland should be avoided as far as reasonably practicable. The suitability for both wintering and breeding birds suggests the Solar Development Site is used year-round for notable bird species, and vegetation clearance should only be conducted between late summer and early autumn to avoid disturbance. Any unavoidable habitat loss on the Solar Development Site should be compensated for via the creation of new habitat tailored to species identified during further surveys, particularly those of conservation concern. Habitat enhancement such as hedgerow infilling, height variation and tree interspersal and grassland enhancements to create tussocky, wildflower-rich margins can increase opportunities for passerine species such as yellowhammer and reed bunting. Habitat features such as skylark plots (bare patches designed to help skylarks to forage) and conservation headlands can further increase support for bird species. Any vegetation clearance of the Solar Development Site prior to or during construction of the Proposed Development should be undertaken between September and February to minimise impacts on breeding bird species.
- 6.2.4.2 Barn owl and kestrel nest boxes could be considered for installation on semi-mature to mature trees across the Solar Development Site where natural roosting features are not present. Barn owl boxes should be placed away from public access, at least three metres above ground, where the nest box access hole is visible to an owl from the most likely entrance point. Kestrel boxes

should be positioned at least five metres above ground with a good viewpoint. A suitably qualified ecologist should be consulted on the locations of these additional features.

6.2.5 Bats

6.2.5.1 Loss of suitable habitat for bat species within the Solar Development Site including hedgerow, mature trees and woodland should be avoided wherever possible. This will retain key roosting, commuting and foraging features used by bats. Planning for construction/ decommissioning stages should include a sensitive lighting strategy developed with inputs from an ecologist, to minimise disturbance to commuting and foraging bat species. It is assumed that continuous lighting is not proposed during operation although lighting sensors for security purposes are likely to be deployed around the electrical infrastructure and potentially at other pieces of critical infrastructure; all lighting would seek to limit impacts on sensitive receptors following relevant industry standard guidance including from the Bat Conservation Trust⁶⁰. Bat boxes could be installed on trees where there are limited or no apparent roosting features for bats (but where surrounding habitat is suitable for foraging and/or commuting). These should be installed at least 4m, ideally 4-6m, from the ground. They should face from south-east to south-west to allow the sun to fall on each box for part of the day.

6.2.6 Reptiles and amphibians

6.2.6.1 Following evaluation of which reptile and amphibian species, if any, are utilising the Solar Development Site, appropriate mitigation measures should be integrated into the design. This includes retaining woodland, grassland, hedgerow and wetland features wherever possible. If any vegetation does require clearance, this should be done in phases to allow any reptiles and amphibians to disperse. Targeted habitat creation should then be considered within the design of the Proposed Development, including ponds and grasslands. Artificially created hibernacula can also be included, which could be created using material cleared from site and cut vegetation. These offer habitat for various reptile and amphibian species which may be utilising the Solar Development Site. Where there are small areas of loss of suitable habitat for access, a displacement exercise should be carried out under the supervision of a suitably qualified ecologist.

6.2.7 Badger and other notable mammals (SPI)

6.2.7.1 Loss of hedgerow, woodland, and grassland margins should be avoided as far as reasonably practicable. In areas where active badger setts are present, suitable buffers must be maintained during construction/ demolition to avoid direct disturbance or habitat loss, particularly for main setts. If these buffers cannot be adhered to, setts may require closure under a licence from Natural England. Where closure of a main sett is required, a suitable artificial sett must be created and in place prior to closure to ensure the continued welfare of the badger population. Other mitigation measures may include holes/ mammal gates at suitable points within any fencing required as part of the Proposed Development to allow access for mammal species.

6.2.7.2 Mammals must be taken into consideration during construction, with mitigation measures put in place including covering holes and trenches and carrying out checks for mammals prior to any groundworks.

6.2.7.3 In areas where active setts and important foraging or commuting routes are found, suitable buffers should be maintained during construction to avoid direct disturbance or habitat loss. It may be necessary to employ further measures such as restricting night-time works and providing ramps in open excavations to prevent badgers from becoming trapped. If any setts are at risk of direct impact, further assessment and, potentially, a licence from the relevant statutory body may be required before undertaking works that could affect an active sett.

6.3 Further survey

6.3.1 Overview

6.3.1.1 Surveys identified in sections 6.3.2 – 6.3.7 below reflect the Solar Development Site only.

6.3.1.2 As design develops for the grid connection cables and the Grid Cable Route Search Area is further defined, the existing desk study presented within this PEA will be updated, and subsequent targeted field surveys will be undertaken to determine the baseline conditions for protected and notable species within the Grid Cable Route Search Area.

6.3.2 Habitats

6.3.2.1 If impacts to higher value habitats cannot be avoided, these areas will require detailed botanical survey to assess their ecological importance and to inform any necessary mitigation or compensation measures. BNG condition scoring is also required to inform BNG calculations and identify the most appropriate areas for enhancement and habitat creation. An arboricultural survey will be required to identify and map mature, notable and veteran trees across the Solar Development Site.

6.3.2.2 Furthermore, should any of the ponds present within the Solar Development Site be impacted by development activities, additional surveys will be required to determine their status as priority ponds. This determination will involve PSYM (Predictive System for Multimetrics) survey sampling of aquatic invertebrates and plants to assess their ecological significance and ensure that any potential impacts are appropriately managed.

6.3.3 Aquatic and semi-aquatic species

6.3.3.1 There is potential for multiple aquatic species to utilise the numerous watercourses, wetlands and water bodies within the Solar Development Site. This includes the wet grasslands within the north parcel, and the various ponds scattered throughout the Solar Development Site. Given the risk of adverse impacts to these features and associated species as a result of the Proposed Development, Habitat Suitability Index (HSI) assessments and eDNA sampling to test for great crested newts is recommended on all appropriate water bodies. Should any ponds return positive DNA results for great crested newt (used to confirm presence/ absence), an application for district level licensing (DLL) is likely to be made to mitigate for any potential likely significant effects in relation to great crested newt within the Solar Development Site and its surrounds.

6.3.3.2 Minimum buffer zones of 5m are assumed around all ponds and a minimum 10m offset is to be maintained from the bank top of all watercourses from all infrastructure (including fencing) and construction works (other than where these watercourses are to be crossed) within the development design, minimising impact risks for other aquatic and semi-aquatic species. If, as designs develop, it is found that the Proposed Development may impact these water features, either directly or indirectly, survey to establish the presence or likely absence of great crested newt, water vole, otter, and various fish and invertebrate species is likely to be required.

6.3.3.3 Surveys would need to be tailored to provide suitable information for an appropriate impact assessment as well as subsequent avoidance, mitigation and enhancement measures.

6.3.4 Badger

6.3.4.1 Prior to the commencement of construction, a field survey of the Solar Development Site should be completed to accurately map all badger field signs, including setts, latrines, feeding areas, and paths, in order to develop suitable avoidance and mitigation measures. Badger surveys should be conducted following best practice methodologies^{61,62}. Surveyors should record and georeferenced all evidence of badger encountered including setts, latrines, snuffle holes or other evidence of foraging, obvious mammal runs (paths leading to or from setts and foraging areas), guard hairs, scratching posts, footprints, carcasses, and any other evidence of suspected badger presence. Camera traps may be required on any potential badger setts to determine the status of the features, following the appropriate methodology⁶³. Because it is assumed that most field

boundaries and other key habitat features will be retained under the Proposed Development, there is no current requirement for territory mapping exercises.

6.3.5 Bats

- 6.3.5.1 Habitat across the Solar Development Site constitutes suitable foraging and commuting habitat for numerous bat species. As a result of this, and of multiple records of bat species returned in the initial data search for the Solar Development Site, bat static monitoring is recommended to identify any scarce bat species and key corridors of movement, and to determine the need for further surveys. Should notable bat activity be recorded, a trapping and tracking survey across the Solar Development Site post-parturition (approximately mid-July) is recommended to confirm species assemblage and breeding status of bats within the Solar Development Site.

6.3.6 Birds

- 6.3.6.1 Habitat within the Solar Development Site is suitable for a range of notable and protected bird species. As such, a scoping assessment for breeding birds was recommended and undertaken for all land within the Solar Development Site to identify likely territories of both ground and tree/scrub nesting birds on each land parcel, and identify the potential need for a full suite of breeding bird surveys. It was identified that breeding bird surveys were necessary for Solar Development Site, and as such these are underway for the 2025 summer season.
- 6.3.6.2 Wintering bird surveys were commissioned for the land within the Solar Development Site as of November 2024, and these surveys were undertaken within the 2024/ 2025 winter season. Given changes to the Solar Development Site that have occurred, it is considered that one further survey season of the Solar Development Site land parcels that have not been subject to survey in the 2024/ 5 wintering season is required to understand the baseline habitats and relevant bird species (i.e. the north-east parcel and south-west parcel). Surveys should be designed in accordance with best practice guidelines⁶⁴.
- 6.3.6.3 Given suitable habitat on site for barn owl, as well as multiple signs of barn owl observed throughout the Solar Development Site, surveys for barn owl are recommended to identify any nest sites present both within the Solar Development Site and within a 175m buffer, following best practice.

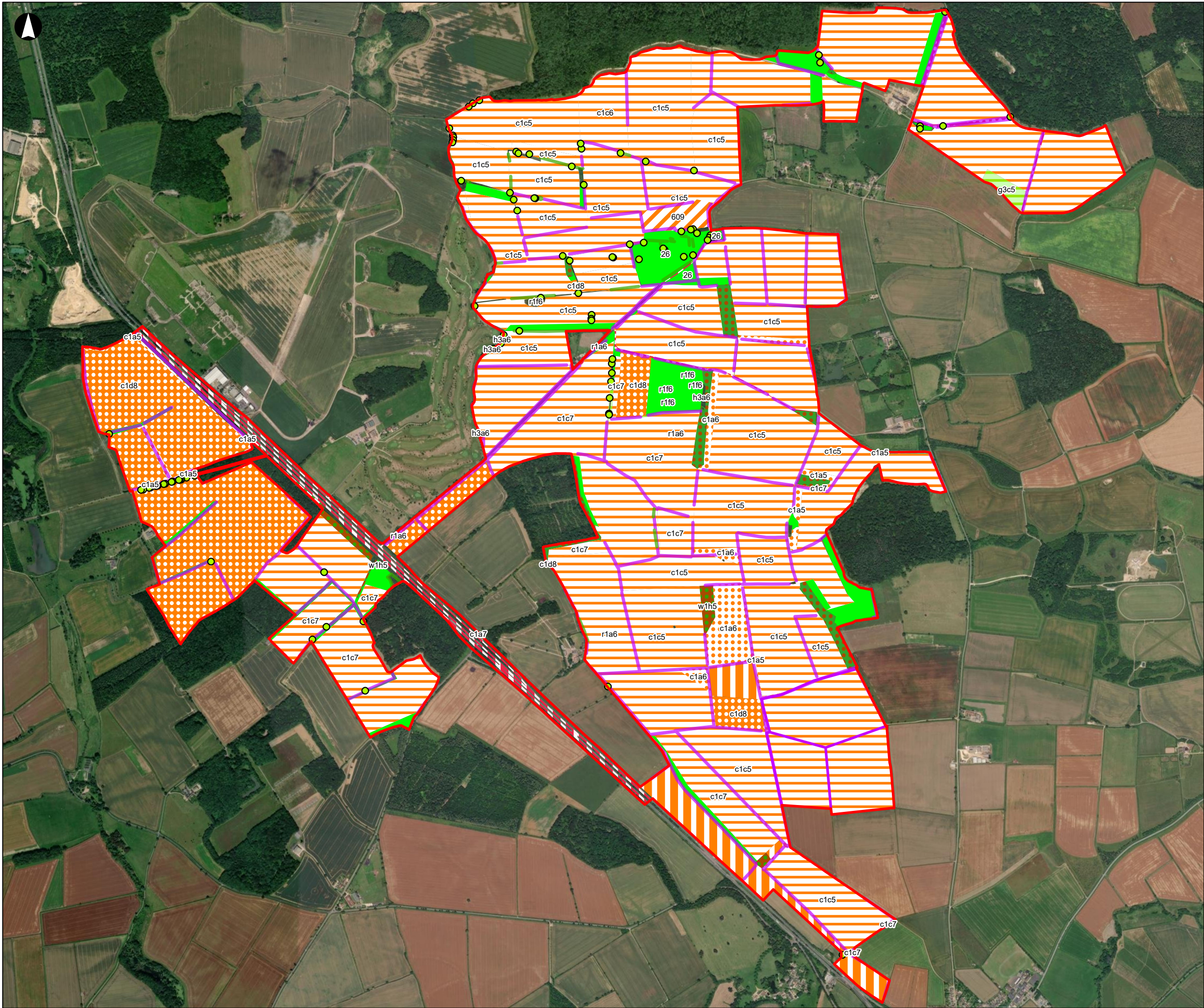
6.3.7 Reptiles

- 6.3.7.1 All native species of reptile are protected by law. Habitats on site including hedgerow and grassland with areas of unvegetated land offer suitable foraging and basking opportunities for reptiles. The habitats suitable for reptiles on site are, for the most part, limited to field margins and borders. As such, the necessity for reptile surveys is dependent on the level of habitat loss to these habitats specifically. At present, it is assumed that PV panels will be limited to cropland fields themselves, with buffers imposed on hedgerow and woodland features that will in turn preserve field margins. If, as designs develop, it is found that these habitats will be impacted by the Proposed Development, surveys to identify the presence or likely absence of reptiles on site are recommended. These surveys can take place between April and September, comprising seven visits in suitable weather conditions⁶⁵. The peak survey months are April, May, June, and September. Should the presence of reptile species be confirmed, a further 13 surveys would be required to determine population size.

Annex A: Target notes

Confidential - available to suitable parties upon request

Annex B: UK Habitat mapping of the Solar Development Site



Solar Development Site

UK Habitat Classification

Points

Rural Trees

Lines

h - Heathland and shrub

r - Rivers and lakes

w - Woodland

Areas

c1 - arable and horticulture

c1a - arable field margins

c1b - temporary grass and clover leys

c1c - cereal crops

c1d - non-cereal crops

g1c - bracken

g3c - other neutral grassland

g4 - modified grassland

h - heathland and shrub

h3 - dense scrub

r1a - eutrophic standing water

u - urban

u1 - built-up areas and gardens

u1b - developed land, sealed surface

u1c - artificial unvegetated unsealed surface

w1 - broadleaved, mixed and yew woodland

w1f - lowland mixed deciduous woodland

w1g - other woodland, broadleaved

w1h - other woodland, mixed

Nottingham

Birmingham

Coordinate System: British National Grid

World Topographic Map: Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS

World Imagery: Earthstar Geographics

World Hillshade: Esri, USGS

Metres

0

275

550

1,100

P02

03/06/2025

DM

BW

AC

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Rev

Date

By

Chkd

Appd

Authd

ARUP

Drawing Title

UK Habitat Classification Map

Client

Kilnside Energy Park Ltd

Project Name

Great Casterton Solar Farm

Scale at A3

1:20,000

Project Number

30463324

Rev

P02

Drawing Number

A3

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Appendix C: Initial Long List for Cumulative Effects Assessment

Contents

Tables

Table 1: Initial long list of cumulative developments for scoping	4

Appendix C Initial Long List for Cumulative Effects Assessment

C.1.1.1.1 This appendix should be read in conjunction with **Section 17: Cumulative and In-Combination Effects** which it informs and accompanies.

Table 1: Initial long list of cumulative developments for scoping

ID	Project Name	Application Reference	Determining Authority	Application Status	Does the project intersect the Solar Development Site? (Y/N)
Nationally Significant Infrastructure Projects within 10km of Solar Development Site¹					
NSIP1	Mallard Pass Solar Farm.	<u>EN010127</u>	Planning Inspectorate (PINS)	Consent granted 12/08/2024	N (but located within 115m of the Solar Development Site and interacts with the Grid Cable Route Search Area)
NSIP2	East Northants Resource Management Facility Western Extension.	<u>WS010005</u>	PINS	Consent granted 24/01/2023	N – located 8.7km south
NSIP3	The Great Grid Upgrade – Weston Marsh to East Leicestershire (WMEL)	<u>N/A</u>	PINS	Pre-Application stage DCO	N – located 6km north (interacts with the Northern Grid Cable Route Search Area)
Transport and Works Act Orders within 10km of Solar Development Site					
N/A (none identified)					
Planning Applications within 10km (large scale) 2km (medium scale) and 200m (small scale) of Solar Development Site²					
<i>Rutland County Council</i>					
RCC1	Full Planning Application for the installation and operation of a solar farm together with all associated works, equipment, necessary infrastructure and biodiversity enhancement areas.	<u>2024/0300/MA</u> <u>E</u>	RCC	Approved 27/03/2025	N
RCC2	Residential development for 41 dwellings comprising 4x1-bedroom units, 18x2-bedroom units, 15x3-bedroom units, 4x4-	<u>2025/0267/MA</u> <u>E</u>	RCC	Undetermined	N

¹ As noted in **Section 17: Cumulative and In-Combination Effects**, this initial long-list focusses on existing developments and/ or approved developments within an initial ZoI of the Solar Development Site (i.e. excluding the options under consideration for the Grid Connection (the Grid Cable Route Search Area). As the Application progresses, this initial long-list would be refined and updated to include the land required for the Grid Connection and other NSIP projects within 10km of the draft Order Limits e.g. those in Lincolnshire will also be considered.

² Refer to Table 17-2 for residential/non-residential criteria used to define scale of application. As the Application progresses, this initial long-list would be refined and updated to include the land required for the Grid Connection and other applications within the ZoI of the Site will also be considered.

ID	Project Name	Application Reference	Determining Authority	Application Status	Does the project intersect the Solar Development Site? (Y/N)
	bedroom units including open space, allotments, improved site access including off-site highway works and ecological enhancements.				
RCC3	The construction of a solar photovoltaic farm and associated infrastructure including inverters, substation compound, security cameras, fencing, access tracks and landscaping, and its operation for a period of 40 years prior to decommissioning.	<u>2024/1482/MA F</u>	RCC	Undetermined	N
RCC4	Erection of 60 leisure lodges for occupation on a non-continuous basis, renovation and conversion of existing barns to form a leisure suite including gym, swimming pool and ancillary spaces including staff accommodation, renovation and alteration of the existing Clubhouse, erection of a new maintenance facility, alterations to the grounds including changes to the golf course and construction of lakes for leisure and ecological purposes, and ancillary works including alterations to the access drive, provision of a visitor check-in kiosk, alterations to car parking, creation of a circular walk, alteration and extension of the noise bund, and consequential landscape works.	<u>2020/1480/MA F</u>	RCC	Approved 30/07/2021	Immediately adjacent to the Solar Development Site
RCC5	Proposed 1 no. earth sheltered dwelling including a Solar Array and Hard/Soft Landscaping.	<u>2025/0400/FU L</u>	RCC	Undetermined	N
RCC6	EIA Screening Opinion request in relation to the delivery of employment uses at land to the North East of A1, at the Former RAF Woolfox Lodge.	<u>2024/1366/SC R</u>	RCC	Undetermined	N
RCC7	Outline planning application with all matters reserved (except for primary means of access) for the delivery of an employment site across Use Classes B2, B8 and E, alongside associated internal access, hardstanding, landscaping (including Biodiversity Net Gain), open space, drainage, required ground remodelling and ancillary infrastructure.	<u>2025/0130/OU T</u>	RCC	Undetermined	N
RCC8	Erection of 4 No. residential two-storey dwellings and introduction of an access road on the western side of the existing Stamford Osteopathic Clinic car park. Introduction of new public footpath on the eastern boundary of the site and new children's play area.	<u>2020/0706/FU L</u>	RCC	Approved 11/02/2022	N
RCC9	Retrospective change of use of agricultural buildings and outside areas to a Livery Yard/Equestrian use.	<u>2024/0673/FU</u>	RCC	Approved 30/07/2024	Immediately adjacent to the Solar

ID	Project Name	Application Reference	Determining Authority	Application Status	Does the project intersect the Solar Development Site? (Y/N)
					Development Site
<i>South Kesteven District Council</i>					
SKDC1	Outline planning permission - for the erection of eight dwellings (all matters reserved).	<u>S21/1710</u>	SKDC	Decided – approved conditionally 27/06/2022	N
SKDC2	Full Planning Application for the erection of 111 dwellings including affordable housing provision, open space including access to the river, soft and hard landscaping including tree lined streets, car and cycle parking including EV charging provision, and vehicular link with the adjacent Vistry site.	<u>S22/1591</u>	SKDC	Undetermined	N
Allocations within 10km (large scale) 2km (medium scale) and 200m (small scale) of Solar Development Site³					
Allocations (large scale) within 10km [>200 housing units, >4ha of land for housing, >2ha of non-residential]					
ALL-L1	Policy H2 (Cross-boundary development opportunity – Stamford North)	<u>N/A</u>	RCC (Regulation 19 Draft Local Plan)	43.4ha site allocated for development as part of a larger mixed-use development opportunity	N (approx. 1.7km south-east)
ALL_L 2	Policy W2 (Greetham Wood Lane)	<u>N/A</u>	RCC Adopted Local Plan Site Allocations and Policies DPD	2.7ha site allocated for small scale waste treatment.	N (approx. 2.1km east)
ALL-L3	Policy SKPR-266 (H1 – Housing Allocations - Stamford Gateway (Exeter Fields))	<u>N/A</u>	South Kesteven Local Plan Review (Reg 18)	10ha site allocated for 180 dwellings	N (approx. 2.3km south-east)
ALL_L 4	Policy W3 (Ketton, Ketco Avenue)	<u>N/A</u>	RCC Adopted Local Plan Site Allocations and Policies DPD	278ha site allocated for inert waste disposal	N (approx. 2.4km south-west)
ALL-L5	Policy STM1-H1 (Stamford North)	<u>N/A</u>	South Kesteven Adopted Local Plan 2020	53.03ha site allocated for 1,300 dwellings	N (approx. 2.5km south-east)

³ As the Application progresses, this initial long-list of allocations would be refined and updated to include the land required for the Grid Connection and other allocations within the ZoI of the Site will also be considered

ID	Project Name	Application Reference	Determining Authority	Application Status	Does the project intersect the Solar Development Site? (Y/N)
ALL_L 6	Policy MIN5(Site specific allocations for the extraction of building stone)	<u>N/A</u>	RCC (Regulation 19 Draft Local Plan)	48ha site providing for the extraction of building stone at Site M1 New Road, Hooby Lane	N (approx. 4.4km north-west)
ALL_L 7	Policy W2 (Cottesmore, Burley Road)	<u>N/A</u>	RCC Adopted Local Plan Site Allocations and Policies DPD	4.7ha site allocated for small scale waste treatment.	N (approx. 4.6km west)
ALL-L8	Policy STM1-H2 (Stamford East Housing Allocations)	<u>N/A</u>	South Kesteven Adopted Local Plan 2020	9.13ha site allocated for 162 dwellings	N (approx. 4.6km south-east)
ALL-L9	Policy E1 Employment Sites (SKPR-288(ST-E1))	<u>N/A</u>	South Kesteven Local Plan Review (Reg 18)	3.9ha site allocated for B2/B8 uses	N (approx. 4.6km south-east)
ALL_L 10	Policy M3 (Sites for the provision of building and roofing stone)	<u>N/A</u>	North Northamptonshire Local Plan Minerals Development DPD	9.2ha site allocated for building and roofing stone	N (approx. 5.6km south)
Opportunity Area					
OA1	Woolfox Opportunity Area	<u>CLI01</u>	RCC	Site identified within RCC's Draft Local Plan under Policy CC8 and associated evidence base including Housing and Employment Site Report ⁴	N (but potentially adjacent to the Solar Development Site)
Projects requiring planning permission that have submitted an EIA scoping report within 5km of the Solar Development Site					
SCO1	Request for EIA Scoping Opinion- Mixed Development at Greetham Quarry.	<u>2020/1388/SCO</u>	RCC	Decided – EIA required	N (3.3km north-west)

⁴ Rutland County Council, Housing and Employment Site Assessment Report July 2024, Available at <https://www.rutland.gov.uk/sites/default/files/2024-09/Housing%20and%20Employment%20Site%20Assessment%20Report%20%28July%202024%29.docx.pdf>

ID	Project Name	Application Reference	Determining Authority	Application Status	Does the project intersect the Solar Development Site? (Y/N)
SCO2	EIA Scoping request in relation to proposed north western and southern extensions to Grange Top Quarry (the Site), Ketton Works, Ketco Avenue, Ketton, Stamford, Rutland.	<u>2023/0133/SCO</u>	RCC	Decided – EIA required	N (2.5km south)
SCO3	Request for EIA Scoping Opinion- - Limestone quarry together with its progressive restoration.	<u>2021/0617/SCO</u>	RCC	Decided – EIA required	N (approx. 2.9km north-west)
Minerals and Waste Applications within 10km of Solar Development Site					
<i>Rutland County Council</i>					
MWA1	S73 application to vary conditions including extension of time limit for site (quarry).	<u>2025/0371/MAF</u>	RCC	Registered	N
MWA2	Change of use from agricultural land to extraction of building stone and limestone, welfare office, weighbridge, haul road, associated plant.	<u>2024/1459/MIN</u>	RCC	Registered	N
MWA3	Proposed extensions to Grange Top Quarry, for construction and use of a new access and site access road from the A606, a security gatehouse, bridleway bridge and associated works to facilitate the continued supply of minerals to Ketton Cement Works, the consolidation of existing mineral extraction permissions and a restoration scheme to recreate agricultural land and biodiversity enhancement works.	<u>2024/0066/MIN</u>	RCC	Registered	N
<i>Lincolnshire County Council</i>					
MWA4	Screening - To extend of the extraction area at the quarry to the east.	<u>EIA/09/24</u>	LCC	Issued 19/11/2024	N
MWA5	Scoping - To extend the extraction area of the quarry to the east.	<u>EIA/14/23</u>	LCC	Issued 06/02/2024	N
MWA6	Screening - To extend the extraction area of the quarry to the east.	<u>EIA/10/23</u>	LCC	Issued 13/11/2023	N

Appendix C: Long List of Major Accidents or Disasters

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D.1 Long List of Major Accidents and Disasters

D.1.1 Introduction

- D.1.1.1 This appendix should be read in conjunction with **Section 16.6: Other Environmental Topics (Major Accidents and Disasters)**, which it informs and accompanies.
- D.1.1.2 Major Accidents and Disasters (MA&D) generally fall into three categories:
- events that could not realistically occur, due to the type of project or its location;
 - events that could realistically occur, but for which the Proposed Development, and associated receptors, are no more vulnerable than any other development; or
 - events that could occur, and to which the Proposed Development is particularly vulnerable, or which the Proposed Development may exacerbate the effects of.
- D.1.1.3 The aim of the screening process was to identify major events based upon those set out in the National Risk Register¹ and local risk registers (described in **Section 16: Other Environmental Topics**) which fall into the third category and to then consider, in accordance with the IEMA Guidance², whether existing design measures or legal requirements, codes and standards are already or will be in place to adequately control the potential major accident and/ or disaster, and/ or whether effects will be adequately covered or assessed by another topic scoped into the Environmental Statement (ES).
- D.1.1.4 The MA&D assessment therefore typically focuses on low likelihood but potentially high consequence events.
- D.1.1.5 For each identified major event, the initial Long List details the relevance of the major event to the Proposed Development and the potential receptors.

Table 1: Long List of Major Accidents and Disasters

ID	Major Accident or Disaster	Relevant for Long List?	Why? (note if risk to the project, or project exacerbates risk)	Potential Receptors	Covered already in the proposed ES/ Application documents?
1	Geological disasters				
1.1	Landslides	No	The risk of landslides will be considered as part of the geotechnical design, ensuring that any risk, if present, is designed out and considers the vulnerability of the Proposed Development to these types of events. However, given the typically flat or gently undulating nature of the land, this risk is considered minimal. The Proposed Development is not anticipated to increase the risk of landslip happening on-site or elsewhere; it will not significantly change the erosion potential of the soil or stability of the land.	N/A	N/A
1.2	Earthquakes	No	The Proposed Development is not located in a geological active area and as such earthquakes are not considered to be a real risk or serious possibility.	N/A	N/A
1.3	Sinkholes	No	The risk of sinkholes will be considered as part of the geotechnical design, ensuring that any risk, if present, is designed out and considers the potential for the Proposed Development to increase the risk of such an event happening off-site.	N/A	N/A
2	Hydrological disasters				
2.1	Floods	Yes	Both the vulnerability of the Proposed Development to flooding, and its potential to exacerbate flooding off-Site, will be assessed in the Flood Risk Assessment (FRA) that accompanies the Application. This will consider relevant climate change scenarios, as agreed with the Environment Agency. No further consideration of flooding as a MA&D risk is therefore required as this would be a duplicate assessment.	Property and people in areas of increased flood risk.	Chapter 10: Water Environment. Mitigation will be considered and, where necessary, incorporated into the Proposed Development design.
2.2	Limnic eruptions	No	Not applicable as there are no lakes considered to be limnically active within the UK.	N/A	N/A
2.3	Tsunami/Storm surge	No	Not applicable as the Proposed Development is not in a coastal location.	N/A	N/A

ID	Major Accident or Disaster	Relevant for Long List?	Why? (note if risk to the project, or project exacerbates risk)	Potential Receptors	Covered already in the proposed ES/ Application documents?
3	Meteorological disasters				
3.1	Blizzards	No	The Proposed Development is considered to be no more vulnerable to blizzards than any other development. As described in Section 6: Climate Change Resilience , the Proposed Development will be designed to be resilient to future UK climate trends including extreme weather events.	N/A	N/A
3.2	Cyclonic storms	No	Although there are storms in the UK, their destructive force tends to be much less than in other parts of the world and the Proposed Development is not particularly vulnerable to any potential effects.	N/A	N/A
3.3	Drought	No	Droughts are only considered as a disaster due to water shortages for essential services and where there are indirect impacts on food production, loss of soils etc. The Proposed Development is not considered to be vulnerable to drought or a potential contributor to drought. Therefore this is not considered a MA&D risk.	N/A	N/A
3.4	Thunderstorms	No	As the Proposed Development includes metal components, there is a risk of lightning strikes. Lightning strikes are being considered during the engineering design of infrastructure and the appropriate standards and protection systems will be used. As these risks will be removed or reduced through design and in-built control systems, this is therefore not considered a MA&D risk and can be Scoped Out .	N/A	N/A
3.5	Hailstorms	No	The Proposed Development is considered to be no more vulnerable to hailstorms than any other development. As described in Section 6: Climate Change Resilience , the Proposed Development will be designed to be resilient to future UK climate trends including extreme weather events.	N/A	N/A
3.6	Heat waves	No	While impacts are expected as a result of projected temperature increases (due to climate change), these temperature increases are not expected to have a significant impact on the Proposed Development as	N/A	No

ID	Major Accident or Disaster	Relevant for Long List?	Why? (note if risk to the project, or project exacerbates risk)	Potential Receptors	Covered already in the proposed ES/ Application documents?
			operating temperatures for process plant and equipment are being considered within the engineering design which takes local climatic conditions into consideration. For example, the cooling systems for the battery energy storage systems (BESS), will regulate temperatures to within safe conditions, reducing this risk to as low as reasonably practicable (ALARP). As any residual risks will be reported under Chapter 6: Climate Change Resilience of the ES, this is not considered a MA&D risk.		
3.7	Tornadoes	No	Although there are tornadoes in the UK, their destructive force tends to be much less than in other parts of the world and the Proposed Development is not particularly vulnerable to any potential effects.	N/A	No
3.8	Wildfires	Yes	There is potential for scrub, grassland, or woodland fires, especially given the expected increase in temperatures and heatwaves associated with climate change. The risk of process fires is a key consideration for the design of the BESS component of the Proposed Development. Refer to ID10 below.	Local residents, habitats and species	Chapter 2: Site Description and the Proposed Development
3.9	Air Quality Events	No	The Proposed Development is not located within any Air Quality Management Areas (AQMA) and there are no AQMA within the RCC, LCC and SKDC authority areas. Although there are likely to be emissions during construction and decommissioning of the Proposed Development, it is considered that these can be managed through the implementation of the Construction Environmental Management Plan (CEMP) and Decommissioning Environmental Management Plan (DEMP). Good practice measures will be set out in an Outline CEMP (oCEMP) and Outline DEMP (oDEMP) that accompany the Application.	N/A	N/A
4	Transport				
4.1	Road Accidents	Yes	During construction of the Proposed Development there will be an increased number of heavy goods	Aquatic Environment Road users	Chapter 10: Water Environment

ID	Major Accident or Disaster	Relevant for Long List?	Why? (note if risk to the project, or project exacerbates risk)	Potential Receptors	Covered already in the proposed ES/ Application documents?
			vehicles (HGV) and plant equipment on the local road network which may increase the risk of accidents. This will be assessed in Chapter 14: Transport and Access of the ES, including cumulative effects with other committed development. No further consideration of road transport accidents during construction and decommissioning as a MA&D risk is therefore required as this would be a duplicate assessment. The risk posed by spillage from hazardous loads as a result of a road traffic accident during construction or decommissioning will be considered in Chapter 10: Water Environment of the ES. Losses in containment of hazardous materials is controlled by regulations for the carriage of dangerous goods, including an emergency response plan in case of release of material. This is therefore not considered a MA&D risk. The potential for glint and glare to affect road users will be considered within a technical appendix to Chapter 16: Other Environmental Topics of the ES and summarised in Chapter 16 if any risks are identified. Glint and glare will be considered through the development of the design of the Proposed Development to minimise potential issues.		Chapter 14: Transport and Access Chapter 16: Other Environmental Topics (Technical Appendix: Glint and Glare assessment) Mitigation will be considered and, where necessary incorporated into the Proposed Development design.
4.2	Rail Accidents	No	The Solar Development Site is not located within 500m of any operational rail lines. The Northern Grid Cable Route Search Area is within 10m of the East Coast Mainline railwayⁱⁱⁱ. As far as reasonably practicable, direct effects on rail assets will be avoided through ongoing design development and refinement of the land required for the electrical connection through routeing and siting studies within the Grid Cable Route Search Areas. The Peterborough to Manton Junction Line is located approximately 425m south from the closest part of the Site (Southern Grid Cable Route Search Area)ⁱⁱⁱ. There will be close liaison and agreement	N/A	N/A

ID	Major Accident or Disaster	Relevant for Long List?	Why? (note if risk to the project, or project exacerbates risk)	Potential Receptors	Covered already in the proposed ES/ Application documents?
			with the railway operator(s) before construction works commence in the vicinity of any rail line in relation to protection of apparatus.		
4.3	Aircraft Disasters	Yes	Section 16: Other Environmental Topics (Section 16.3: Glint and Glare) identifies the airports and airfields located within a 10km study area. The potential for glint and glare to affect aircraft will be considered within a technical appendix to the ES and if any risks are identified, mitigation to reduce the risk to ALARP via design mitigation will be incorporated into the Proposed Development design. The creation of any permanent water features (e.g. ponds) as part of the landscape and biodiversity strategy will consider relevant airfield safeguarding policies to minimise the potential for any increased risk to air safety.	Pilots and aircraft	Section 9: Ecology and Biodiversity Environmental Topics (Technical Appendix: Glint and Glare assessment) Mitigation will be considered and, where necessary incorporated into the Proposed Development design
5	Engineering Accidents/Failures				
5.1	Bridge Failure	No	Bridge works are not proposed as part of the Proposed Development and therefore are not considered a MA&D risk.	N/A	N/A
5.2	Tunnel Failure or Fire	No	Tunnel works are not proposed as part of the Proposed Development and therefore are not considered a MA&D risk.	N/A	N/A
5.3	Dam/ reservoir Failure	Yes	Rutland Water, a reservoir, is approximately 3.5km from the Solar Development Site. As noted in Section 10: Water Environment and Flood Risk , according to the Environment Agency mapping, the Solar Development Site is not at risk from reservoir flooding.	Property and people in areas of increased flood risk Proposed Development	Will be considered in the Flood Risk Assessment that accompanies the Application.
5.4	Flood Defence Failure	No	Presence of, and risk of failure of, any flood defences will be addressed in the FRA that accompanies the Application which will assess any residual risk in relation to any flood defence breach. This therefore requires no further consideration as a MA&D risk as this would be a duplicate assessment.	Property and people in areas of increased flood risk	Chapter 10: Water Environment Mitigation will be considered and, where necessary, incorporated into the Proposed Development design.

ID	Major Accident or Disaster	Relevant for Long List?	Why? (note if risk to the project, or project exacerbates risk)	Potential Receptors	Covered already in the proposed ES/ Application documents?
5.5	Mast and Tower Collapse	No	The monitoring and maintenance of any radiocommunication and telecommunication masts in the study area is not within the control of the Applicant and the Proposed Development is not considered any more vulnerable to mast/ tower collapse than other existing development in the area.	N/A	N/A
5.6	Building failure or fire	No	The Proposed Development does not involve any demolition of buildings and will be designed considering the proximity of adjacent features including buildings. There are no buildings located immediately adjacent to the Solar Development Site and therefore building failure or risk of fire from adjacent buildings is not considered a MA&D risk. The risk of fire associated with the Proposed Development is assessed under 'Operational / Process Control Hazards (ID10)' below.	N/A	N/A
5.7	Utility Failure	Yes	Electrical failure may be caused by supply issues or disruption to infrastructure caused by incidents such as severe weather. Responsibility for repair would fall to the District Network Operator (DNO). The Proposed Development will utilise its own separate electrical connection and have integrated safety procedures so that infrastructure remains in a safe condition in the event of an electrical failure so that this risk is reduced to ALARP. To identify existing infrastructure constraints, both consultation and a desk-based study will be undertaken. This will help to mitigate and prevent potential impacts of construction of the Proposed Development on existing utilities infrastructure.	Employees and local residents	No, however, consultation with relevant utilities providers is a routine part of solar development and consultees will include water, gas, and electricity utilities providers and telecommunications providers as appropriate. Information obtained from consultation will be used to inform the layout design.
6	Industrial Accidents				
6.1	Defence industry	No	Not applicable as there are no defence industry facilities in proximity to the Proposed Development.	N/A	N/A
6.2	Energy industry (fossil fuel)	No	Not applicable as there is no energy industry (fossil fuel) in proximity to the Proposed Development.	N/A	N/A

ID	Major Accident or Disaster	Relevant for Long List?	Why? (note if risk to the project, or project exacerbates risk)	Potential Receptors	Covered already in the proposed ES/ Application documents?
6.3	Nuclear Power	No	Not applicable as there are no nuclear power facilities in proximity to the Proposed Development.	N/A	N/A
6.4	Oil and gas refinery/storage	No	Not applicable as there are no oil and gas refinery/ storage facilities in proximity to the Proposed Development.	N/A	N/A
6.5	Food Industry	No	Impacts on farmland and food production will be considered in Chapter 15: Agriculture and Soils . Excluding agriculture, there are no other components of food production in proximity to the Proposed Development.	N/A	N/A
6.6	Chemical Industry	No	Not applicable as there are no chemical industry facilities in proximity to the Proposed Development.	N/A	N/A
6.7	Manufacturing Industry	No	Not applicable as there are no manufacturing facilities in proximity to the Proposed Development.	N/A	N/A
6.8	Mining/ Extractive Industry	No	Woolfox Quarry, an active limestone quarry is located 120m north-west of the Solar Development Site beyond a dense stand of woodland that forms part of the Exton Park Grade II Registered Park and Garden. Given the distance from the Solar Development Site and intervening land use there is no credible risk event considered likely from this active quarry.	N/A	N/A
7	Terrorism/Crime/Civil unrest	No	The Proposed Development is unlikely to be a target for these types of incident due to its rural location and low number of exposed targets.	N/A	N/A
8	War	No	The Proposed Development is no more vulnerable to war than any other infrastructure.	N/A	N/A
9	Disease				
9.1	Human disease	No	The Proposed Development is considered no more vulnerable to human disease than any other infrastructure.	N/A	N/A

ID	Major Accident or Disaster	Relevant for Long List?	Why? (note if risk to the project, or project exacerbates risk)	Potential Receptors	Covered already in the proposed ES/ Application documents?
9.2	Animal disease	No	The Proposed Development is considered no more vulnerable to animal disease than any other infrastructure.	N/A	N/A
9.3	Plant disease	Yes	New planting may be susceptible to biosecurity issues, such as increased prevalence of pests and diseases, due to climate change.	Habitats and species	Chapter 9: Ecology and Biodiversity Chapter 11: Landscape and Visual Amenity The planting design will take account of biosecurity risks through a wider mix of species including some non-natives.
10	Operational/ Process Hazards	Yes	There may be some potential for fire as a result of the battery storage element of the Proposed Development. The main risks associated with fires will be for residential receptors or farm buildings in close proximity to the Solar Development Site. However, the BESS will include cooling systems, which are designed to regulate temperatures to within safe conditions to minimise the risk of fire. In addition, the Proposed Development design will include adequate separation between battery banks to ensure that an isolated fire would not become widespread and lead to a major incident. Fire detection and suppression features would be installed to detect (e.g. multispectrum infrared flame detectors) and suppress fire (e.g. water base suppression systems) to minimise the effect of any fire. An Outline Battery Safety Management Plan (oBSMP) will accompany the Application.	Local residents, habitats and species	Through the application of the Battery Safety Management Plan , no impacts are expected. The accidental release of contaminants during proposed operation, including contaminated water runoff in the unlikely event of a fire will be considered as part of the BESS drainage design in the Outline Drainage Strategy that accompanies the Application.
11	Unexploded ordnance (UXO)	Yes	There is a low risk of UXO within the Site, however, there is a risk of UXO being disturbed during construction. A qualitative assessment for UXO will be included in the Preliminary Risk Assessment (PRA) Report. This will inform standard mitigation measures that will be outlined in the CEMP.	Local residents and construction workers	UXO will be considered in the Chapter 16: Other Environmental Topics (Technical Appendix: PRA Report) which. Mitigation measures will be outlined in the oCEMP that accompanies the Application.

D.1.2 References

- ¹ HM Government (2023) National Risk Register. Available at: https://assets.publishing.service.gov.uk/media/64ca1dfe19f5622669f3c1b1/2023_NATIONAL_RISK_REGISTER_NRR.pdf [Accessed 06/06/2025].
- ² IEMA 2020: Major Accidents and Disasters in EIA:A Primer. Available at: https://www.iema.net/media/brbdeibt/j27374_iema_major_accidents_disasters_final-1.pdf. [Accessed May 2025].
- ⁱⁱⁱ National Rail (2025) Accessibility map. Available at: <https://accessmap.nationalrail.co.uk/> [Accessed May 2025].