

EN0110033

Environmental Impact Assessment (EIA) Scoping Report

Volume I Main Report

Document Reference

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Acronyms

Acronyms	Full Terms
AC	Alternating Current
AEP	Annual Exceedance Probability
AIL	Abnormal Indivisible Load
ALC	Agricultural Land Classification
AQMA	Air Quality Management Area
AQS	Air Quality Strategy
BESS	Battery Energy Storage System
BGS	British Geological Survey
BNG	Biodiversity Net Gain
BSMP	Battery Safety Management Plan
dBSMP	detailed Battery Safety Management Plan
CB6	Carbon Budget 6
CDM	Construction (Design & Management) Regulations
CE	European Conformity
CEMP	Construction Environmental Management Plan
CIRIA	Construction Industry Research and Information Association
CO ₂	Carbon Dioxide
COMAH	Control of Major Accident Hazards Regulations
CR	Cable Route
CRC	Cable Route Corridor
CCR	Climate Change Risk
CRRs	Community Risk Registers
CRTN	Calculation of Road Traffic Noise
CTMP	Construction Traffic Management Plan
CNP	Critical National Priority (EN-1)
DCO	Development Consent Order
DC	Direct Current
Defra	Department for Environment, Food & Rural Affairs
DEMP	Decommissioning Environmental Management Plan
dDEMP	Detailed Decommissioning Environmental Management Plan
DMRB	Design Manual for Roads and Bridges

Acronyms	Full Terms
EA	Environment Agency
EIA	Environmental Impact Assessment
EIA Regs 2017	Infrastructure Planning (Environmental Impact Assessment) Regulations 2017
EMF	Electromagnetic Fields
EMR	Electromagnetic Radiation
EPA	Environmental Protection Act
EPR	Environmental Permitting Regulations
EPUK	Environmental Protection UK
EPMS	Ecological Protection and Mitigation Strategy
ERP	Emergency Response Plan
ES	Environmental Statement
FES	Future Energy Scenarios
FRA	Flood Risk Assessment
FRS	Fire and Rescue Service
FTE	Full Time Equivalent
GCSE's	General Certificate of Secondary Educations
GHG	Greenhouse Gas
GI	Geotechnical Investigation
GPP	Guidance for Pollution Prevention
GVA	Gross Value Added
GW / MW / kV	Gigawatt / Megawatt / Kilovolt
GWDTE	Groundwater Dependent Terrestrial Ecosystems
HAZID	Hazard Identification Study
HAZOP	Hazard and Operability Study
HSA	Health Security Agency
HSE	Health & Safety Executive
HDD	Horizontal Directional Drilling
HGV	Heavy Goods Vehicle
HSC	Hazardous Substances Consent
IAQM	Institute of Air Quality Management
ICCI	In-Combination Climate Change Impacts
ICNIRP	International Commission on Non-Ionising Radiation Protection

Acronyms	Full Terms
IDB	Internal Drainage Board
IGP	Island Green Power
IEMA	Institute of Environmental Management and Assessment
INNS	Invasive Non Native Species
ISEP	Institute for Sustainability and Environmental Professionals (formerly IEMA)
IRZ	Impact Risk Zone
LAQM	Local Air Quality Management
LAD	Local Authority District
LEMP	Landscape and Ecological Management Plan
LGV	Light Goods Vehicle
LIR	Local Impact Report
LLFA	Lead Local Flood Authority
LNR	Local Nature Reserve
LPA / LPAs	Local Planning Authority / Authorities
LSFT	Large Scale Fire Testing
LWS	Local Wildlife Site
MA&D	Major Accidents and Disasters
MPA	Mineral Products Association
MSA	Mineral Safeguarding Area
NCA	National Character Area
NCN	National Cycle Network
NETS	National Electricity Transmission System
NESO	National Energy System Operator
NFCC	National Fire Chiefs Council
NFPA	National Fire Protection Association
NGR	National Grid Reference
NO ₂	Nitrogen Dioxide
NPPF	National Planning Policy Framework
NPSE	Noise Policy Statement for England
NPS	National Policy Statement
NPS EN-1	Overarching NPS for Energy
NPS EN-3	NPS for Renewable Energy Infrastructure
NPS EN-5	NPS for Electricity Networks Infrastructure

Acronyms	Full Terms
NPSA	National Protective Security Agency
NRMM	Non-Road Mobile Machinery
NRR	National Risk Register
NSIP	Nationally Significant Infrastructure Project
NVZ	Nitrate Vulnerable Zone
OEMP	Operational Environmental Management Plan
ONS	Office for National Statistics
oCEMP	Outline Construction Environmental Management Plan
oOEMP	Outline Operational Environmental Management Plan
oDEMP	Outline Decommissioning Environmental Management Plan
oLEMP	Outline Landscape and Ecological Management Plan
oBSMP	Outline Battery Safety Management Plan
oSMP	Outline Soil Management Plan
oEPMS	Outline Ecological Protection and Mitigation Strategy
oCTMP	Outline Construction Traffic Management Plan
oPRoWMP	Outline Public Rights of Way Management Plan
oSSCEP	Outline Skills, Supply Chain and Employment Plan
PADSS	Principal Areas of Disagreement Summary Statement
PAS	Publicly Available Specification
PA2008	Planning Act 2008
PM	Particulate Matter
PINS	Planning Inspectorate
PPA	Planning Performance Agreement
PEIR	Preliminary Environmental Information Report
PPE	Personal Protective Equipment
PPG	Planning Practice Guidance
PPW	Planning Policy Wales
PRoW	Public Rights of Way
PV	Photovoltaic
RAG	Red, Amber Green (assessment notation)
RCP	Representative Concentration Pathway
ReBC	Redditch Borough Council
RTDU-SAGR	River Terrace Deposits (Sand–Gravel)
SAC	Special Area of Conservation

Acronyms	Full Terms
SoS	Secretary of State
SFRA	Strategic Flood Risk Assessment
SMP	Soil Management Plan
SoADC	Stratford-on-Avon District Council
SoCC	Statement of Community Consultation
SoCG	Statement of Common Ground
SPZ	Source Protection Zone
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage Systems
SWDP	South Worcestershire Development Plan
SWDPR	South Worcestershire Development Plan Review
SWLP	South Warwickshire Local Plan
TA	Transport Assessment
TANs	Technical Advice Notes
UKCA	UK Conformity Assessed
UKCP	UK Climate Projections
UL	Underwriters Laboratory
WaCC	Warwickshire County Council
WEEE	Waste Electrical and Electronic Equipment
WFD	Water Framework Directive
WMAWP	West Midlands Aggregate Working Party
WMP	Waste Management Plan
WoCC	Worcestershire County Council
WyDC	Wychavon District Council
UKCP18	UK Climate Projections 2018
RCP8.5	Representative Concentration Pathway 8.5
EC	European Commission
OS	Ordnance Survey
MAGIC	Multi-Agency Geographic Information for the Countryside
LiDAR	Light Detection and Ranging
AIMS	Asset Information Management System
AOD	Above Ordnance Datum
FCD	Field Capacity Days
MD	Moisture Deficit

Acronyms	Full Terms
MDW	Moisture Deficit for Wheat
MDP	Moisture Deficit for Potatoes
CO ₂ e	Carbon Dioxide Equivalent
LULUC	Land Use & Land-Use Change
ICE	Inventory of Carbon & Energy
DESNZ	Department for Energy Security and Net Zero
CCC	Climate Change Committee
IPCC	Intergovernmental Panel on Climate Change
LRN	Local Road Network
SRN	Strategic Road Network
NMU	Non-Motorised User
MCC	Manual Classified Count
ATC	Automatic Traffic Count
STGO	Special Types General Order
ESDAL	Electronic Service Delivery for Abnormal Loads
CWTP	Construction Worker Travel Plan
CoPA	Control of Pollution Act
PPGN	Planning Practice Guidance Noise
NSR / NSRs	Noise Sensitive Receptor(s)
BNL	Basic Noise Level
PPV	Peak Particle Velocity
ISO	International Organization for Standardization
ANC	Association of Noise Consultants (from ANC Guide to BS 4142)
RPG / RPGs	Registered Park and Garden(s)
NL / NLs	National Landscape(s) (new national designation replacing AONBs)
SLA	Special Landscape Area
LCA / LCAs	Landscape Character Assessment(s)
LCT / LCTs	Landscape Character Type(s)
CPRE	Campaign to Protect Rural England
LoGS	Local Geological Site
DBA	Desk-Based Assessment
HER	Historic Environment Record

Acronyms	Full Terms
NHLE	National Heritage List for England
CifA	Chartered Institute for Archaeologists
HLC	Historic Landscape Characterisation
RFFP / RFFPs	Reasonably Foreseeable Future Project(s)
ZoI	Zone of Influence

Glossary

Key Terms	Definitions
Abnormal Indivisible Load (AIL)	Large/heavy load exceeding standard limits (e.g., >44t, >2.9m width). Requires STGO routing, notifications, escorts.
Access Track	Internal track for HGV/AIL and maintenance vehicles; 3.5–6m wide depending on function.
Additional Mitigation	Measures required where embedded mitigation is insufficient.
Agricultural Land Classification (ALC)	Classification system for land quality (Grades 1–5); Grades 1–3a are Best and Most Versatile (BMV).
Agricultural Land Holding	A farm enterprise made up of one or more land parcels managed by a single person or business.
Agrivoltaics	Dual use land system combining PV generation with agricultural activity.
Air Quality Management Area (AQMA)	An area designated by a Local Authority where national air quality objectives are unlikely to be met. Once declared, the authority must prepare an Air Quality Action Plan to improve local air quality.
Annual Exceedance Probability (AEP)	The likelihood, expressed as a percentage, that a flood of a given magnitude will occur in any one year. A 1% AEP corresponds to a 1 in 100-year flood event.
Ancient Woodland	Woodland continuously present since at least AD 1600; irreplaceable habitat.
Archaeological Desk Based Assessment (DBA)	Review of heritage/archaeological records to inform baseline and potential impacts.
Archaeological Potential	Likelihood that unknown archaeological remains may exist.
Arden National Character Area (NCA 97)	Landscape region characterised by wood pasture, hedgerows and farmland.
Average Annual Rainfall (AAR)	Climatic moisture indicator used in soil/wetness/ALC assessments.
Baseline Conditions	Environmental conditions prior to development.
Battery Energy Storage System (BESS)	A system comprised of battery units, inverters, transformers and associated control equipment that stores electricity for later use and supports grid balancing.

Key Terms	Definitions
Best and Most Versatile (BMV) Land	ALC Grades 1, 2, and 3a — highest quality agricultural land.
Best Practicable Means (BPM)	A requirement to adopt the most effective methods to prevent or minimise environmental impact, considering technological, practical, and economic constraints.
Bifacial Monocrystalline Panels	Solar PV modules generating electricity from both front and rear surfaces.
British Geological Survey (BGS)	The UK's national provider of geological data, mapping and monitoring.
Brooks / Open Rivers	Minor watercourses across the Site (e.g., Ban Brook, Piddle Brook, Gate Inn Brook).
Cable Route (CR)	Narrow working width required during cable installation.
Cable Route Corridor (CRC)	The cable route connecting PV areas to the Point of Connection.
Climate Change Committee (CCC)	The independent statutory body advising the UK Government on emissions reduction and progress to net zero.
Climate Vulnerability Assessment (CVA)	Assessment of Scheme sensitivity to future climate hazards.
CO ₂ Equivalent (CO ₂ e)	Standard unit expressing the global warming potential of greenhouse gases relative to CO ₂ .
Combined / In-Combination Effects	Effects arising when multiple impact pathways act together on a receptor.
Construction Environmental Management Plan (CEMP)	Measures to manage and minimise construction phase environmental impacts.
Construction Traffic Management Plan (CTMP)	Routing, logistics, safety and delivery management for construction traffic.
Conversion Unit (Integrated or Disaggregated)	Electrical equipment converting DC from panels to AC for grid export.
Cotswolds National Landscape (CNL)	Nationally designated landscape; intervisibility assessed within LVIA.
Cumulative Effects	Combined effects from the Scheme plus other Reasonably Foreseeable Future Projects (RFFPs).
Cumulative Effects Assessment (CEA)	Assessment of intra-scheme and inter-project cumulative effects.
Dark Skies	Low-light areas mapped by CPRE indicating nighttime sensitivity.

Key Terms	Definitions
Design Envelope (Rochdale Envelope)	Approach allowing assessment of a range of design parameters to maintain flexibility.
Designated Heritage Asset	Legally protected heritage features (Listed Buildings, Conservation Areas, Scheduled Monuments).
Development Consent Order (DCO)	Consent required under the Planning Act 2008 for NSIPs.
Direct Current (DC)	Electricity generated by PV panels before conversion to AC.
Driver Delay	Changes in travel time caused by altered traffic flows.
Ecological Network	Linked habitats supporting species dispersal and resilience.
Ecosystem Services	Benefits provided by soil, water, habitats, ecosystems.
Electromagnetic Fields (EMF)	Low-frequency electric and magnetic fields from electrical infrastructure, required to comply with ICNIRP guidelines.
Emergency Response Plan (ERP)	Plan describing actions for on-site emergencies (fire, chemical spill, extreme weather).
Environment Act 2021	Legislation including mandatory Biodiversity Net Gain (BNG).
Environmental Impact Assessment (EIA)	Statutory process for evaluating likely significant environmental effects.
Environmental Improvement Plan 2023 (EIP 2023)	National environmental strategy referenced in EN-1.
Environmental Management Plan (EMP)	Umbrella term for CEMP, OEMP, DEMP, LEMP.
Environmental Statement (ES)	The document submitted with the DCO application.
Feckenham 400 kV National Grid Substation	400 kV National Grid substation ~8 km from the nearest Site parcel.
Field Capacity Days (FCD)	Days soil remains at field capacity; used in ALC.
Fixed Solar Panels	PV panels mounted at a fixed south-facing tilt.
Flood Zone (1–3)	National classification of tidal/fluviat flood probability.
Footpath / Public Right of Way (PRoW)	Pedestrian/equestrian route protected by law.

Key Terms	Definitions
Geometric Modelling (Glint & Glare)	Modelling to determine reflection angles, duration and intensity.
Glare / Glint	Solar reflections — glare = sustained; glint = brief.
Grid Connection Cables	HV underground cables linking Sites to the NETS.
Hazard Score (Traffic)	Composite score assessing NMU fear/intimidation (ISEP).
Heavy Goods Vehicle (HGV)	Large commercial vehicle for materials delivery.
Heritage Setting	Environment in which a heritage asset is experienced.
Historic Landfill	Former waste disposal site with contamination risk.
Horizontal Directional Drilling (HDD)	Trenchless cable installation method used beneath obstacles.
In-Combination Effects	Interactions of multiple environmental effects within the Scheme.
Integrated Conversion Unit (ICU)	Containerised housing for conversion equipment.
Likely Significant Effects	Effects assessed as Moderate or Major.
Light Goods Vehicle (LGV)	Small vans/pickups used for construction/maintenance.
Local Planning Authorities (LPAs)	Host and neighbouring planning authorities.
Magnitude of Impact	Size, scale and extent of an environmental impact.
Mitigation Hierarchy	Avoid → Reduce → Remedy/Restore → Compensate → Enhance.
Mounting Structure	Steel or concrete framework supporting PV panels.
National Character Area (NCA)	Landscape character areas defined by Natural England.
National Electricity Transmission System (NETS)	National grid system to which the Scheme connects.
National Energy System Operator (NESO)	Publisher of Future Energy Scenarios (FES).
National Planning Policy Framework (NPPF)	National planning policy.
National Policy Statements (NPS)	EN-1, EN-3, EN-5.
Nationally Significant Infrastructure Project (NSIP)	Status of the Scheme under PA2008.
Nitrate Vulnerable Zone (NVZ)	Land designated for nitrate pollution control.

Key Terms	Definitions
Option Land	Land under consideration or subject to option agreements.
Order Limits	The final DCO application boundary.
Peak Particle Velocity (PPV)	Measurement of ground vibration.
Permissive Path	Non-statutory access route created as enhancement.
Photomontage	Verified LVIA visual showing proposed development.
Piling	Driving metal posts 1.5–4 m into ground for mounting structures, or deeper foundations for other infrastructure such as Substations.
Planning Act 2008	Legislative framework for NSIPs.
Planning Performance Agreement (PPA)	Agreement for resourcing/engagement with LPAs.
Point of Connection (PoC)	The agreed grid connection point.
Preliminary Environmental Information Report (PEIR)	The pre-application environmental information report.
Principal Areas of Disagreement Summary Statement (PADSS)	Summary of disagreements for Examination.
Reasonably Foreseeable Future Projects (RFFPs)	Developments considered in cumulative assessment.
Relay / Control / Switch Rooms	Substation buildings for protection/control systems.
Residual Effects	Effects remaining after mitigation is applied.
Scoping Report	Scoping Opinion Request.
Secretary of State (SoS)	DCO decision maker.
Separation Distance (Rows)	Minimum spacing between PV panel rows.
Severance (Transport)	Reduction in ease of movement or community connectivity.
Single Axis Tracking Panels	PV modules rotating east–west on a north–south axis.
Solar Photovoltaic (PV) Array	Assemblies of solar panels producing DC.
Statement of Common Ground (SoCG)	Document recording agreements with stakeholders.
Statement of Community Consultation (SoCC)	S47 document setting out consultation approach.
Study Area	Defined assessment area per ES topic.

Key Terms	Definitions
Substation (132kV / 400kV)	Electrical compounds stepping voltage up/down for export.
Swale	Vegetated drainage channel.
the Act	Planning Act 2008.
the Applicant	Arrow Valley Solar Limited.
the Planning Inspectorate (PINS)	Body administering NSIPs.
the Scheme	Arrow Valley Solar and Battery Energy Storage System (BESS).
the Site	Land parcels comprising the Scheme.
Tilt Angle (Panels)	Vertical angle of solar modules.
Traffic Flow Thresholds (ISEP)	<30% negligible; 30–60% small; 60–90% medium; >90% large.
Trenchless Techniques	Cable installation avoiding open trenching (e.g., HDD).
Underground Ducting	Protective conduit for HV cables.
Visual Amenity	Quality of views experienced by receptors.
Visibility Splays	Sightlines needed for safe road access.
Wetness Class (WC I–VI)	Soil wetness classification.
Working Width (Cable Installation)	Typical 25–35m corridor required for cable installation works.
Zone of Influence (Zol)	Area where effects may be experienced.
Area of Site and sub-Sites (ha)	
Total Site Area	1071
sub-Site 1(a)	67.66
sub-Site 1(b)	46.46
sub-Site 1(c)	147.77
sub-Site 1(d)	22.07
sub-Site 1(e)	148.22
sub-Site 2(a)	108.58
sub-Site 2(b)	20.41
sub-Site 2(c)	23.96
sub-Site 2(d)	133.60
sub-Site 2(e)	32.50
sub-Site 3(a)	13.14
sub-Site 3(b)	48.16

Key Terms	Definitions
sub-Site 3(c)	50.68
sub-Site 3(d)	97.96
sub-Site 3(e)	17.02
sub-Site 3(f)	13.59
sub-Site 3(g)	41.92
Site 4	37.22
Cable Route Corridor (CRC) Length (m)	
CRC1	8301.41
CRC2	1389.46
CRC3	2547.76
CRC4	368.03
CRC5	351.72
CRC6	636.99
CRC7	2578.87

1 Introduction

1.1 Background and site overview

- 1.1.1 This Environmental Impact Assessment (EIA) Scoping Report (hereafter known as the 'Scoping Report') has been prepared on behalf of Arrow Valley Solar Limited (the 'Applicant') for a solar photovoltaic (PV) electricity generating station, and associated development including Battery Energy Storage System (BESS), Ancillary Infrastructure, a Customer Substation and Grid Connection Infrastructure.
- 1.1.2 The Scheme known as Arrow Valley Solar and BESS (hereafter referred to as "the Scheme"), covers approximately 1762 hectares (ha) of land across four Sites and seven Cable Route Corridors (CRCs), which would both connect the four Sites together connect the Scheme to the National Grid. The Scheme would allow for the generation and export of >100 megawatts (MW) Alternating Current (AC) of renewable energy, connecting into the National Electricity Transmission System (NETS). The Site falls under the jurisdiction of three Local Planning Authorities (LPA) (Redditch Borough Council (ReBC), Stratford-on-Avon District Council (SoADC) and Wychavon District Council (WyDC)) and two County Councils (Warwickshire County Council (WaCC) and Worcestershire County Council (WoCC)).
- 1.1.3 The Scheme will contribute to the reduction of carbon emissions and reliance on traditional fossil fuels by providing a renewable energy source to assist with the UK's energy transition. The Scheme also seeks to put Worcestershire and Warwickshire at the forefront of low carbon energy development, production and servicing, with the intention of bringing economic, community and environmental benefits.

Scoping Boundary

- 1.1.4 Volume II, Figure 1.1 illustrates the Scoping boundary that has been used to inform this Scoping Report. The Scheme is split up into four Sites, each of which contain sub-Sites as shown in Volume II, Figure 1.2. Further details are outlined in Chapter 3 - The Scheme and its Wider context. Plans are provided in full in Volume II.
- 1.1.5 The scoping boundary is defined as the area within which the Scheme will be located, including its electrical infrastructure and temporary work areas. The boundary combines the solar PV arrays, conversion units, substations (including BESS Site) and CRC, which is the cable route (CR) that connects the solar PV areas and the Point of Connection (PoC).

- 1.1.6 The EIA process will inform the design of the Scheme. This may result in the Site boundary being changed, specifically in respect of the CRC, when the final Development Consent Order (DCO) Order Limits are defined.

1.2 EIA Regulations

- 1.2.1 As the Scheme comprises the construction of a generating station with a capacity of over 100MW it is defined as a Nationally Significant Infrastructure Project ('NSIP') under sections 14(1)(a) and 15(2) of the Planning Act 2008¹ (PA2008) and therefore must be consented by way of a DCO.
- 1.2.2 The EIA Regulations² stipulate that developments listed under Schedule 1 must be subject to EIA, while Schedule 2 lists development which will be subject to EIA if considered "likely to have significant effects on the environment by virtue of factors such as its nature, size or location". The criteria on which this judgement should be made are set out in Schedule 3.
- 1.2.3 The Scheme is a Schedule 2 development under paragraph 3(a) as it constitutes "Industrial installations for the production of electricity, steam, water and hot water".
- 1.2.4 The Applicant confirms that it will be providing an Environmental Statement (ES) to accompany its DCO application, and this Scoping Report therefore constitutes notice under Regulation 8(1)(b) of the EIA Regulations. Owing to the size, nature, and location of the Scheme, it is likely to have significant effects on the environment and is therefore considered to be EIA development.

1.3 The Applicant

- 1.3.1 The Scheme is being led by the Applicant, Arrow Valley Solar Limited, which is a subsidiary of Island Green Power (IGP). IGP is a leading developer of renewable energy projects, established in 2013.

¹ Planning Act 2008. Available at: <https://www.legislation.gov.uk/ukpga/2008/29/contents>

² Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available at: <https://www.legislation.gov.uk/uksi/2017/572/contents>

- 1.3.2 IGP has successfully delivered nearly 40 projects worldwide that have generated more than 3GW of energy capacity. This includes 21 solar and storage projects in the UK. Its projects include the consented NSIPs Cottam Solar Project and West Burton Solar Project, both located in Lincolnshire and Nottinghamshire. Its mission is to be the leading innovator in sustainable, clean energy development by pioneering solutions that facilitate the energy transition and conserve the planet's ecosystems.

1.4 Purpose of Scoping Report

- 1.4.1 The process of identifying the issues to consider within the ES and establishing the scope of the assessment, is known as 'Scoping'. Although Scoping is not a mandatory requirement under the EIA Regulations, it is recognised as a useful preliminary procedure which helps to identify the main effects that a Scheme is likely to have on the environment.
- 1.4.2 This Scoping Report provides information on the proposed Scheme location, a description of the Scheme, the likely significant effects on the environment, and any other such information that is considered relevant, including the proposed approach to assessment, in compliance with Regulation 10(3) of the EIA Regulations.
- 1.4.3 Chapters 6 to 16 inclusive, address the environmental topics where there are likely to be significant environmental effects. The environmental topics which are unlikely to result in significant environmental effects and are proposed to be scoped out are presented in Chapter 5 "Topics to be Scoped Out" of this Scoping Report.
- 1.4.4 Overall, and in line with best practice, this scoping exercise aims to achieve the following objectives:
- Establish the availability of existing baseline data;
 - Identify the likely significant effects resulting from the construction, operation, and decommissioning of the Scheme;
 - Define a survey and assessment framework from which a comprehensive EIA spanning those environmental topics which are likely to experience significant environmental effects can be undertaken; and
 - Invite consultees to comment on the proposed EIA, in terms of:
 - The potential significant environmental effects which require assessment;
 - The assessment methodology for each environmental topic proposed to be scoped into the EIA process;
 - Identify relevant existing baseline data sources or information held by consultees that should be considered in the EIA;

- Issues of perceived concern; and
- Any other areas which should be addressed in the EIA.

1.4.5 This Scoping Report has been prepared by AtkinsRéalis, including its appropriately qualified and chartered assessors, on behalf of the Applicant.

1.5 Consultation & Engagement Approach

1.5.1 The Planning and Infrastructure Act (2025)³ ("the Act") received Royal Assent on 18 December 2025. The Act includes a series of Government reforms to the planning system in the United Kingdom, including the DCO process.

1.5.2 The Act, once fully in force, will remove the current requirement under Sections 42 and 47 of the PA2008 for Applicants to consult host authorities, statutory bodies, landowners, and the public before submitting a DCO application. This requirement is to be replaced by a requirement for Applicants to have regard to any guidance issued by the Secretary of State (SoS) regarding the duty under section 48 of the PA2008 to publicise proposed DCO applications.

1.5.3 The Act also removes the legal requirement to produce and consult on a formal Preliminary Environmental Information Report (PEIR) under the EIA Regulations.

1.5.4 Early and ongoing engagement with consultees will be important to influence the design process of the Scheme by seeking an appropriate level of feedback from consultees, to ensure that comments are considered in Scheme design.

1.5.5 In light of the changes contained within the Act, it is expected that the Scheme will not be subject to the current statutory consultation procedure under S42 of the PA2008. However, a robust stakeholder and community engagement approach will be pursued in order to identify and address potential issues prior to submission of the DCO. The Applicant will comply with the provisions in the PA2008, including any statutory guidance, and EIA Regulations that apply at the relevant time during the pre-application process.

³ The Planning and Infrastructure Act 2025. Available at: <https://www.legislation.gov.uk/ukpga/2025/34/enacted>

Scoping Consultation

- 1.5.6 The Planning Inspectorate (PINS), acting on behalf of the SoS, will consult on this Scoping Report in accordance with Regulation 10(6) of the EIA Regulations. Consultees include statutory consultation bodies, including environmental bodies (such as the Environment Agency and Historic England) as well as relevant planning authorities. Comments received from consultees will be considered and included within the Scoping Opinion issued by PINS.
- 1.5.7 The Applicant has sought to engage with key stakeholders from an early stage to brief them on the Scheme, focus the environmental studies and to identify specific issues. Contact has been made and where possible, meetings have occurred with the following statutory consultees to introduce the Scheme and commence discussions on detailed matters relating to the Scheme:
- Local Authorities (Members and Officers);
 - PINS;
 - Local Members of Parliament;
 - Environment Agency;
 - Historic England; and
 - Natural England.
- 1.5.8 The Applicant will undertake on-going consultation with the host authorities, the stakeholders identified above and other relevant consultees and stakeholders, throughout the duration of the Scheme development and preparation of the ES.
- 1.5.9 A Programme Document will be available on the Scheme's website, setting out the timetable for the development of the Scheme, including key milestones and dates where formal consultation is planned, once this has been agreed with PINS.
- 1.5.10 In respect of the local communities likely to be affected by the Scheme, the Applicant will undertake public consultation in 2026 to encourage feedback and inform the design of the Scheme.

Public Consultation

- 1.5.11 A public consultation on the Scheme will be undertaken in 2026 to understand the views of stakeholders and members of the public. The Applicant will have regard to responses received during the public consultation in the design evolution of the Scheme.

1.6 Legislative Context and Planning Policy

Introduction

Net Zero Opportunities of the Power Sector

- 1.6.1 In June 2019 the Government raised the UK's ambition on tackling climate change by legislating for a net-zero greenhouse gas (GHG emissions target for the whole economy by 2050. Decarbonising the power sector is integral to achieving this goal and requires major investment in renewable energy, such as solar, which are supported by planning policy at a local and national level.
- 1.6.2 The British Energy Security Strategy (April 2022)⁴ expects a five-fold increase in solar deployment by 2035, with an ambition for up to 70GW of solar installed by this date. Powering Up Britain: Energy Security Plan (March 2023)⁵ reiterated the aim of achieving 70GW of solar by 2035. This generally aligns with modelling in the National Energy System Operator (NESO) report, Future Energy Scenarios⁶, published in July 2023, which provides comparable statistics (although slightly less than) which shows a need for approximately 60GW of solar being needed between 2030-2035 in the 'Leading the Way' scenario.
- 1.6.3 Although the above figures are high-level, they demonstrate the amount of new infrastructure that is required to meet the urgent need to decarbonise the energy sector in the UK. The scale of this need is such that it must be shared throughout the UK and in recognition that climate change is a national and global issue.
- 1.6.4 The UK Government's Clean Power 2030 Action Plan⁷ sets out a strengthened pathway to delivering a fully clean power system by 2030. The Plan commits to ensuring that clean energy sources generate at least as much electricity as Great Britain consumes annually, with 95% of total generation from low-carbon technologies and no more than 5% from unabated gas. The Action Plan also revises capacity expectations,

⁴ Department for Energy Security and Net Zero, Prime Minister's Office, 10 Downing Street and Department for Business, Energy & Industrial Strategy (2022) British Energy Security Strategy. Available at: <https://assets.publishing.service.gov.uk/media/626112c0e90e07168e3fdb3/british-energy-security-strategy-web-accessible.pdf>

⁵ Department for Energy Security and Net Zero (2023) Powering Up Britain: Energy Security Plan. Available at: <https://www.gov.uk/government/publications/powering-up-britain/powering-up-britain-energy-security-plan>

⁶ National Energy Systems Operator (2025) Pathways to Net Zero: Future Energy Scenarios 2025. Available at: <https://www.neso.energy/document/364541/download>

⁷ Department for Energy Security and Net Zero (2025) Clean Power 2030 Action Plan. Available at: <https://www.gov.uk/government/publications/clean-power-2030-action-plan>

including 45–47 GW of solar capacity and 23–27 GW of battery energy storage by 2030, underscoring the central role of solar and storage in a resilient and decarbonised electricity system⁸.

Primary Legislation

Planning Act 2008

- 1.6.5 The Scheme constitutes an NSIP, in accordance with the PA2008, as amended by the Planning and Infrastructure Act 2025³, as it comprises:
- The construction or extension of a generating station (Section 14(1)(a)); and
 - Is located in England, generates electricity from wind or directly from sunlight, is not an offshore generating station, and has a capacity of more than 100MW (Section 15(2)).
- 1.6.6 Therefore, a DCO Application under the PA2008 is required which will be determined by the SoS.

Environment Act 2021

- 1.6.7 The Environment Act 2021⁹ is the UK's new framework of environmental protection and requires the SoS to set at least one long term target in each of the four key priority areas: air quality; biodiversity; water; and waste. This will be achieved by a set of measures targeted at UK businesses and supply chains. The 2021 Act also targets four key areas for the recovery of habitats.
- 1.6.8 Of key relevance to the Scheme, is that the government has proposed to introduce statutory biodiversity net gain (BNG) requirements to NSIPs¹⁰ from May 2026. If introduced, this will be a statutory requirement that the Scheme will need to achieve a minimum of 10% BNG.

⁸ House of Common Library (2026) Research Briefing No. 10182 Clean Power Targets. Available at: <https://researchbriefings.files.parliament.uk/documents/CBP-10182/CBP-10182.pdf>

⁹ The Environment Act 2021. Available at: <https://www.legislation.gov.uk/ukpga/2021/30/contents>

¹⁰ Department for Environment, Food & Rural Affairs (2025) Biodiversity net gain for nationally significant infrastructure projects. Available at: <https://www.gov.uk/government/consultations/biodiversity-net-gain-for-nationally-significant-infrastructure-projects>

Net Zero Strategy: Build Back Greener

- 1.6.9 The Net Zero Strategy¹¹, published by Government on 19 October 2021, builds on the Government's commitments made in the Energy White Paper (2020)¹² and sets out the long-term strategy, policy and proposals to keep the UK on track for future carbon budgets as well as setting the vision for a decarbonised economy by 2050. Key policies in the Strategy relating to UK power generation include:

"By 2035 the UK will be powered entirely by clean electricity, subject to security of supply; [...]"

"40 GW of offshore wind by 2030, with more onshore, solar and other renewables – with a new approach to onshore and offshore electricity networks to incorporate new low carbon generation and demand in the most efficient manner that takes account of the needs of local communities [...]"

"Deployment of new flexibility measures including storage to help smooth out future price spikes."

National Planning Policy

National Policy Statements (NPSs)

- 1.6.10 The DCO Application must be determined in accordance with Section 104 of the PA2008. The SoS must decide the DCO Application in accordance with any relevant NPSs (unless one of the limited exceptions apply) and have regard to any local impact report (LIR) and any other matters which the SoS thinks are both important and relevant to their decision.
- 1.6.11 The following energy NPSs are relevant to the Scheme:
- Overarching NPS for Energy (EN-1)¹³;
 - NPS for Renewable Energy Infrastructure (EN-3)¹⁴; and

¹¹ HM Government, October (2022) Net Zero Strategy: Build Back Greener, (online). Available at: <https://assets.publishing.service.gov.uk/media/6194dfa4d3bf7f0555071b1b/net-zero-strategy-beis.pdf>

¹² HM Government, December (2020) Energy White Paper, Powering our Net Zero Future. Available at: https://assets.publishing.service.gov.uk/media/5fdc61e2d3bf7f3a3bdc8cbf/201216_BEIS_EWP_Command_Paper_Accessible.pdf

¹³ Department for Energy Security and Net Zero (2026) Overarching National Policy Statement for Energy (EN-1). Available at: <https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025>

¹⁴ Department for Energy Security and Net Zero (2026) National Policy Statement for Renewable Energy Infrastructure (EN-3). Available at: <https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3-2025>

- NPS for Electricity Networks Infrastructure (EN-5)¹⁵.

Overarching NPS for Energy (EN-1)

- 1.6.12 The Overarching NPS for Energy (EN-1) sets out the national policy for delivering major energy infrastructure in England and Wales. NPS EN-1 has effect in combination with the relevant technology specific NPS, in this case Renewable Electricity Generation (EN-3). Together, EN-1 and EN-3 will provide the primary basis for decisions made by the SoS for the Scheme.
- 1.6.13 Part 3 of EN-1 identifies the need that exists for nationally significant energy infrastructure. With regards to decision making, paragraph 3.2.2 of EN-1 states:
- “We need a range of different types of energy infrastructure to deliver these objectives. This includes the infrastructure described within this NPS but also more nascent technologies, data, and innovative infrastructure projects consistent with these objectives”.*
- 1.6.14 Paragraph 3.2.4 states:
- “It is not the role of the planning system to deliver specific amounts or limit any form of infrastructure covered by this NPS. It is for industry to propose new energy infrastructure projects that they assess to be viable within the strategic framework set by government. This is the nature of a market-based energy system. With the exception of new coal or large-scale oil-fired electricity generation, the government does not consider it appropriate for planning policy to set limits on different technologies but planning policy can be used to support the government’s ambitions in energy policy and other policy areas”*
- 1.6.15 Paragraph 3.2.8 states:
- “The SoS should assess all applications for development consent for the types of infrastructure covered by this NPS on the basis that the government has demonstrated that there is a need for those types of infrastructure, which is urgent, as described for each of them in this Part”.*
- 1.6.16 As is explained in paragraph 3.2.9, the SoS has determined that substantial weight should be given to this need when considering application for a DCO under the PA2008.

¹⁵ Department for Energy Security and Net Zero (2026) National Policy Statement for Electricity Networks Infrastructure (EN-5). Available at: <https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5-2025>

- 1.6.17 Paragraph 3.2.10 states:
- “The SoS is not required to consider separately the specific contribution of any individual project to satisfying the need established in this NPS”.*
- 1.6.18 Section 3.3 of EN-1 establishes the need for new nationally significant electricity infrastructure. Paragraph 3.3.1 states:
- “Electricity meets a significant proportion of our overall energy needs and our reliance on it will increase as we transition our energy system to deliver our Clean Power 2030 Mission and net zero targets. We need to ensure that there is sufficient electricity to always meet demand; with a margin to accommodate unexpectedly high demand and to mitigate risks such as unexpected plant closures and extreme weather events”.*
- 1.6.19 Paragraphs 3.3.4 to 3.3.7 in sum set out the need for different types of electricity infrastructure, identifying none of them will enable meeting of the objectives in isolation and the need for increased flexibility provided by new storage and interconnectors to reduce costs in support of an affordable supply. This section also discusses the flexibility of storage and interconnection, security of supply and the reduction in need for new network infrastructure.
- 1.6.20 Paragraph 3.3.12, in referencing decentralised and community energy systems notes the Government's recognition that these technologies will not replace the need for new large-scale electricity infrastructure.
- 1.6.21 Paragraph 3.3.23 states:
- “Wind and solar are the lowest cost ways of generating electricity, helping reduce costs and providing a clean and secure source of electricity supply (as they are not reliant on fuel for generation). Our analysis shows that a secure, reliable, affordable, net zero consistent system in 2050 is likely to be composed predominantly of wind and solar¹⁶”.*
- 1.6.22 Paragraph 3.3.24 notes that renewable energy sources, such as solar, need to be complemented with technologies which supply electricity, or reduce demand, when the availability of intermittent renewable sources is low – for example when weather conditions are less favourable.

¹⁶ Footnote 30 taken from EN-1: Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy (2020) Modelling 2050 – electricity system analysis. Available at: <https://www.gov.uk/government/publications/modelling-2050-electricity-system-analysis>

- 1.6.23 The need for electricity generating capacity is further demonstrated by Paragraph 3.3.57 as:
- “Government has committed to reduce GHG emissions by 78 per cent by 2035 under Carbon Budget 6¹⁷. The 2030 Clean Power Action Plan requires that 95% of Great Britain’s generation will come from clean sources by 2030”.*
- 1.6.24 Paragraph 3.3.25 to 3.3.31 discusses the role of electricity storage, a key component of the Scheme. Paragraph 3.3.25 explains that storage has a key role to play in achieving net zero. Storage provides flexibility to the energy system, so that high volumes of low carbon power, heat and transport can be integrated.
- 1.6.25 Paragraph 3.3.26 states that:
- “Storage is needed to reduce the costs of the electricity system and increase reliability by storing surplus electricity in times of low demand to provide electricity when demand is higher.”*
- 1.6.26 Paragraph 4.1.5 of EN-1 states that in considering any proposed development, and when weighing its adverse impacts against its benefits, the SoS should take into account:
- “Its potential benefits including its contribution to meeting the need for the Clean Power 2030 Mission and net zero, job creation, reduction of geographical disparities, environmental enhancements, and any long-term or wider benefits.*
- Its potential adverse impacts, including on the environment, and including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce, mitigate or compensate for any adverse impacts, following the mitigation hierarchy”.*
- 1.6.27 The energy NPSs have taken account of the National Planning Policy Framework (NPPF)¹⁸, the Planning Practice Guidance (PPG)¹⁹ for England,

¹⁷ Footnote 42 taken from EN-1: Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy (2021) Carbon Budgets. Available at:

<https://www.gov.uk/guidance/carbon-budgets#setting-of-the-sixth-carbon-budget-2033-2037>

¹⁸ Ministry of Housing, Communities & Local Government (2024) National Planning Policy Framework. Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

¹⁹ Ministry of Housing, Communities and Local Government, Ministry of Housing, Communities & Local Government (2018 to 2021) and Department for Levelling Up, Housing and Communities (2019) Use of planning conditions. Available at: <https://www.gov.uk/guidance/use-of-planning-conditions>

and Planning Policy Wales (PPW)²⁰ and Technical Advice Notes (TANs)²¹ for Wales, where appropriate. Other matters that the SoS may consider both important and relevant to decision-making may include Development Plan documents or other documents in the Local Development Framework.

- 1.6.28 Part 4 of EN-1 relates to the critical national priority (CNP) for low carbon infrastructure. The Government has committed to fully decarbonising the power system by 2035, subject to security of supply, to underpin its 2050 net zero ambitions. Paragraph 4.2.2 states that:

“Ensuring the UK is more energy independent, resilient and secure requires the smooth transition to abundant, low-carbon energy. The UK’s strategy to increase supply of low carbon energy is dependent on deployment of renewable and nuclear power generation, alongside hydrogen and CCUS. Our energy security and net zero ambitions will only be delivered if we can enable the development of new low carbon sources of energy at speed and scale.”

- 1.6.29 The Government has therefore concluded that there is a CNP for the provision of nationally significant low carbon infrastructure.

- 1.6.30 Paragraph 4.2.17 notes the scope remains as set out in the PA2008 to the definition of what counts as nationally significant infrastructure, low carbon infrastructure for the purpose of the policy is set out, in part, as:

“For electricity generation, all onshore and offshore generation that does not involve fossil fuel combustion (that is, renewable generation, including anaerobic digestion and other plants that convert residual waste into energy, including combustion, provided they meet existing definitions of low carbon; and nuclear generation), as well as natural gas fired generation which is carbon capture ready.

For electricity grid infrastructure, all power lines in scope of EN-5 including network reinforcement and upgrade works, and associated infrastructure such as substations. This is not limited to those associated specifically with a particular generation technology, as all new grid projects will contribute towards greater efficiency in constructing, operating and connecting low carbon infrastructure to the NETS.

For other energy infrastructure, fuels, pipelines and storage infrastructure, which fits within the normal definition of “low carbon”,

²⁰ Welsh government (2024) Planning policy Wales. Available at: <https://www.gov.wales/planning-policy-wales>

²¹ Welsh government (2023) Technical advice notes. Available at: <https://www.gov.wales/technical-advice-notes>

such as hydrogen distribution, and carbon dioxide distribution are also classed as low carbon infrastructure for the purposes of this policy."

- 1.6.31 It is therefore considered that the Scheme is low carbon infrastructure and so is considered CNP infrastructure.
- 1.6.32 The CNP policy applies following the normal consideration of the need case, the impacts of the Scheme, and the application of the mitigation hierarchy.
- 1.6.33 Section 4.3 of the NPS EN-1 is related to the requirement for assessment of likely significant environmental effects/considerations and reporting within an ES for projects that are subject to the EIA Regulations²².
- 1.6.34 Paragraph 4.3.4 of the NPS states that:
"To consider the potential effects, including benefits, of a proposal for a project, the applicant must set out information on the likely significant environmental, social and economic effects of the development, and show how any likely significant negative effects would be avoided, reduced, mitigated or compensated for, following the mitigation hierarchy. This information could include matters such as employment, equality, BNG, community cohesion, health and well being".
- 1.6.35 Paragraph 4.3.5 continues:
"For the purposes of this NPS and the technology specific NPSs the ES should cover the environmental, social and economic effects arising from pre-construction, construction, operation and decommissioning of the project".
- 1.6.36 Paragraph 4.3.18 and 4.3.19 states that:
"The SoS should consider the worst-case impacts in its consideration of the application and consent, providing some flexibility in the consent to account for uncertainties in specific project details" and "The SoS should consider how the accumulation of, and interrelationship between, effects might affect the environment, economy, or community as a whole, even though they may be acceptable when considered on an individual basis with mitigation measures in place".

²² Footnote 82 taken from EN-1: The government has announced plans to bring forward legislation to replace the existing EU-generated systems of Environmental Impact Assessment and Strategic Environmental Assessment with a new system of Environmental Outcomes Reports. The new system will be brought forward through subsequent regulations following further consultation. Environmental assessment will still be required and, when introduced, relevant plans and projects will have to comply with such regulations. Until the new system is implemented, current legislation on environmental assessment continues to apply

- 1.6.37 EN-1 sets out assessment principles and generic impacts that an ES should address, and any specific considerations for applications. This includes a reference at paragraph 4.3.20 that the SoS should have regard to the ambitions, goals and targets set out in the Government's Environmental Improvement Plan 2023 for improving the natural environment and heritage. This includes having regard to the achievement of statutory targets set under the Environment Act 2021.

NPS for Renewable Energy Infrastructure (EN-3)

- 1.6.38 The NPS for Renewable Energy Infrastructure (EN-3), taken together with NPS EN-1, provides the primary basis for decisions by the SoS on applications it receives for nationally significant renewable energy infrastructure.
- 1.6.39 The importance of generation of electricity from renewable sources is stated at Paragraph 1.1.2 of NPS EN-3:
- "Electricity generation from renewable sources is an essential element of the transition to Clean Power 2030 Mission, net zero and meeting our statutory targets for the sixth carbon budget (CB6). Our analysis suggests that demand for electricity is likely to increase significantly over the coming years and could more than double by 2050. This could require a fourfold increase in low carbon electricity generation, with most of this likely to come from renewables".*
- 1.6.40 EN-3 Section 2.10 Solar PV Generation recognises that solar forms a key part of the government's strategy for low-cost decarbonisation of the energy sector. The government has committed to sustained growth in solar capacity to ensure that the UK is on a pathway that allows the net zero target to be met.
- 1.6.41 Paragraph 2.10.2 states that solar is at the heart of the Clean Power 2030 Mission. The government is committed to working with industry to radically increase our solar capacity by 2030 to boost growth across the country, create thousands of high-skill, future-proofed jobs and tackle the climate crisis.
- 1.6.42 Paragraph 2.10.5 states that solar farms are one of the most established renewable electricity technologies in the UK and the cheapest form of electricity generation.
- 1.6.43 Paragraphs 2.10.10 to 2.10.40 of EN-3 set out the following key considerations involved in the siting of a solar farm, in addition to considerations specific to individual projects:
- Irradiance and site topography;

- Network connection;
- Proximity of a site to dwellings;
- Agricultural land classification and land type;
- Accessibility;
- Public rights of way (PRoW); and
- Security and lighting.

1.6.44 Paragraphs 2.10.41 to 2.10.118 of EN-3 outline the technical considerations for solar farms that relate to site capacity, site layout design and appearance, project lifetime, decommissioning and flexibility in the project details.

1.6.45 Paragraphs 2.10.119 to 2.10.136 of EN-3 provide topic-specific requirements of how applicants should consider impacts within technical assessments, and development of proposed mitigation measures for solar development, for the following topics:

- Agricultural Land classification and land type;
- Biodiversity and ecological conservation;
- Landscape, visual and residential amenity;
- Glint and glare;
- Historic environment; and
- Construction including traffic and transport noise and vibration.

NPS for Electricity Networks Infrastructure (EN-5)

1.6.46 The NPS for Electricity Networks Infrastructure (EN-5) forms part of the suite of energy NPSs to be read in conjunction with the Overarching NPS for Energy (EN-1).

1.6.47 Paragraph 1.1.1 of EN-5 states:

“The security and reliability of the UK's current and future energy supply is highly dependent on having an electricity network which will enable the new electricity generation, storage, and interconnection infrastructure that our country needs to meet the rapid increase in electricity demand required to transition to Clean Power by 2030 and net zero, while maintaining energy security”.

1.6.48 Paragraph 1.6.1 of NPS EN-5 is relevant to the Scheme as the policy applies to:

“transmission systems (the long-distance transfer of electricity through 400kV and 275kV lines), and distribution systems (lower voltage lines from 132kV to 230V from transmission substations to the end-user) which can either be carried on towers/monopoles, or undergrounded; and associated infrastructure, e.g. substations (the essential link

between generation, transmission" and "the distribution systems that also allows circuits to be switched or voltage transformed to a useable level for the consumer) and converter stations to convert DC power to AC power and vice versa. These are particularly relevant to the conversion of long-distance offshore DC transmission to AC, when it arrives onshore for distribution".

1.6.49 NPS EN-5 includes a section on 'Environmental and BNG' at Section 2.5, which states:

"When planning and evaluating the proposed development's contribution to environmental and biodiversity net gain, it will be important – for both the applicant and the SoS – to supplement the generic guidance set out in EN-1 (Section 4.6) with recognition that the linear nature of electricity networks infrastructure can allow for excellent opportunities to:

- *Reconnect important habitats via green corridors, biodiversity stepping zones, and reestablishment of appropriate hedgerows; and/or*
- *Connect people to the environment, for instance via footpaths and cycleways constructed in tandem with environmental enhancements".*

1.6.50 Section 2.9 of EN-5 concerns the relevant impacts which applicants must provide information on in addition to those impacts covered in NPS EN-1, being: Biodiversity and Geological Conservation; Landscape and Visual Impact; Undergrounding and subsea cables, Noise and Vibration, Electric and Magnetic Fields (EMFs) and Sulphur Hexafluoride.

NPPF

1.6.51 The 'NPPF' (February 2025)¹⁸ sets out the UK government's planning policies for England and how these are expected to be applied.

1.6.52 Paragraph 7 of the NPPF states that at its core is the need for the planning system to contribute to the achievement of sustainable development; defined in high level terms as meeting the needs of the present without compromising the ability of future generations to meet their own needs.

1.6.53 So that sustainable development is pursued in a positive way, at the heart of the NPPF is a presumption in favour of sustainable development.

1.6.54 The NPPF will be important and relevant for the purposes of the SoS decision making. The NPPF also provides relevant context for individual assessment topics.

- 1.6.55 Section 14, Paragraph 161 'Meeting the challenge of climate change, flooding and coastal change' of the NPPF identifies that:
- "The planning system should support the transition to net zero by 2050 and take full account of all climate impacts including overheating, water scarcity, storm and flood risks and coastal change. It should help to: shape places in ways that contribute to radical reductions in GHG emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure".*
- 1.6.56 In response to planning for climate change, Paragraph 168 sets expectations of LPAs, when determining planning applications for renewable and low carbon development, to not require applicants to demonstrate overall need for renewable or low carbon energy and approve the application if its impacts are (or can be made) acceptable.
- 1.6.57 The Government published a draft revised version of the NPPF for consultation on 16 December 2025. The consultation closed on 10 March 2026. The draft NPPF for consultation includes Policies W2: Securing renewable and low carbon energy and electricity network infrastructure; and W3: Renewable and low carbon energy development and electricity network infrastructure. These policies provide more robust support for renewable energy development than the current NPPF, setting out that substantial weight should be given to the benefits of such development for improving energy security, supporting economic development and moving to a net zero future. Policy W3 further reinforces that Applicants should not be required to demonstrate the need for renewable or low carbon energy development and electricity network infrastructure.

Local Planning Policy

- 1.6.58 Local planning policy will be taken into account in decision-making by the SoS if they consider it "important and relevant", where raised by host authorities in the LIR (which host authorities LPAs will prepare following submission of the DCO application).
- 1.6.59 ReBC, SoADC and WyDC are the relevant LPAs for the Scheme.
- 1.6.60 This section provides a high-level overview of policies supporting renewable energy schemes within the development plan for the Scheme.

Borough of Redditch Local Plan No. 4 2011- 2030

- 1.6.61 The Borough of Redditch Local Plan No. 4 2011-2030²³ is the relevant development plan document for ReBC.
- 1.6.62 There is no direct support for standalone renewable energy schemes, however Policy 15 does state:
- “the use of small scale renewable technologies will be encouraged in appropriate locations.”*

South Worcestershire Development Plan (SWDP) 2016

- 1.6.63 SWDP 2016²⁴ is the relevant development plan document for WyDC, alongside Malvern Hills District Council and Worcester City Council.
- 1.6.64 It offers high-level support for standalone renewable energy schemes, with Policy SWDP 27 stating that:
- “...proposals for stand-alone renewable and other low carbon energy schemes are welcomed and will be considered favourably having regard to the provisions of other relevant policies in the Plan.”*

South Worcestershire Development Plan Review (SWDPR)

- 1.6.65 The South Worcestershire Councils (i.e. Malvern Hills, Worcester and Wychavon) commenced a review of the SWDP in late 2017. The revised SWDPR was subject to Regulation 19 consultation in November and December 2022 and was submitted to the SoS for independent examination in September 2023. The Main Modifications consultation will run from 6 January to 17 February 2026. The SWDPR is due to be adopted in March 2026.
- 1.6.66 The SWDPR remain supportive of standalone renewable and low carbon energy schemes, with Policy SWDPR 33 stating that:
- “... proposals for stand-alone renewable and other low carbon energy schemes will be supported if impacts are (or can be made) acceptable.”*

²³ Redditch Borough Council (2017). Borough of Redditch Local Plan No. 4 (2011–2030). Available at: <https://www.redditchbc.gov.uk/media/tbodcekr/adopted-borough-of-redditch-local-plan-no4-2011-2030.pdf>

²⁴ South Worcestershire Development Plan (2016) South Worcestershire Development Plan. Available at: <https://www.swdevelopmentplan.org/component/fileman/?view=file&routed=1&name=The-Adopted-SWDP-February-2016.pdf&folder=Documents/South%20Worcestershire%20Development%20Plan/SWDP%202016&container=fileman-files>

Stratford-on-Avon District Core Strategy 2011-2031

- 1.6.67 The Stratford-on-Avon District Core Strategy 2011-2031²⁵ is the relevant development plan document for Stratford on-Avon District Council. It provides support for standalone renewable energy projects, including solar specifically, whilst outlining specific issues proposals will be assessed against.
- 1.6.68 Within the Core Strategy's strategic objectives, it states that by 2031:
- “the District will have reduced its GHG emissions, so as to contribute to the national target for reduction, through a range of measures such as the location and design of development, provision of renewable and low carbon energy schemes, and promoting opportunities for low carbon travel.”*
- 1.6.69 Policy CS.3 builds on this objective, outlining that:
- “where large scale low carbon and/or renewable energy projects are proposed that serve national, regional or county interest, but the majority of the effects will be felt locally, the Council will support such schemes where the impacts are, or can be, made acceptable.”* However, it does specify that *“the developer must demonstrate, through a balanced assessment of the proposal's positive and negative effects, that detrimental impacts at construction, operation and decommissioning stage are appropriately minimised, mitigated and compensated.”*
- 1.6.70 It further expands to state that:
- *“proposals for solar energy will be supported where the impacts are, or can be, made acceptable, unless material considerations indicate otherwise. Applications for solar development will be assessed against the following issues, which are considered to be of particular local significance in the District:*
 - *Impact on agricultural activities and disturbances to agricultural land.*
 - *Impact on the openness and character of the landscape and on visual amenity.*
 - *Impact on the character of the historic landscape.*
 - *Impacts of trees and other vegetation which may cause overshadowing, making allowance for their future growth.*
 - *Impact on and opportunities to enhance biodiversity.*

²⁵ Stratford-on-Avon District Council (2016) Stratford-on-Avon District Core Strategy 2011- 2031. Available at: <https://tysoe.org.uk/wp-content/uploads/SDC-CORE-STRATEGY-2011-2031-July-2016.pdf>

- *Impact of direct and reflected lighting (including glare) on the amenity of occupied affected buildings or land on light pollution, on aviation and on biodiversity (particularly bats)."*

South Warwickshire Local Plan (SWLP) Preferred Options (Regulation 18) Consultation

- 1.6.71 SoADC is currently working with Warwick District Council to prepare a new SWLP for both districts. The SWLP will replace the existing Stratford-on-Avon Core Strategy 2011-2031. Most recently, the Councils ran a Preferred Options (Regulation 18) consultation from January to March 2025, to allow interested parties to respond to and comment on the Draft Local Plan.
- 1.6.72 The SWLP Preferred Options also sets out a clear policy direction relating to climate change and renewable energy development. The document recognises the need to support the transition to a low-carbon South Warwickshire and highlights the role of renewable energy technologies in helping to deliver net-zero objectives. As part of the emerging policy framework, Section 7.1 Large-Scale Renewable Energy Generation and Storage sets out the preferred approach for enabling renewable and low-carbon energy development, including solar, wind, hydrogen, biomass, geothermal, hydro, and associated infrastructure such as battery storage²⁶.
- 1.6.73 The Local Plan timetable outlines that the Regulation 19 Local Plan is expected to be consulted on between December 2025 and February 2026, although this has not yet happened. The SWLP is currently scheduled to be adopted in December 2027.

²⁶ Warwick District Council and Stratford on Avon District Council (2025) South Warwickshire Local Plan – Preferred Options (Regulation 18). Available at: <https://southwarwickshire.oc2.uk/document/148/4741>

2 Methodology

2.1 Introduction

- 2.1.1 EIA is the process undertaken to identify and evaluate the likely significant effects of the Scheme on the environment and to identify measures to mitigate or manage any likely significant adverse effects. The EIA should be informed by consultation with statutory consultees, other interested bodies, and members of the public. The purpose of identifying the likely significant effects is to ensure decision makers can make an informed judgement on the environmental effects of a proposal.
- 2.1.2 This chapter of the Scoping Request explains the approach that will be taken to assess and understand the likely significant effects of the Scheme. The Scoping Request sets out relevant methodologies that will be used in the EIA. Where topic-specific methodologies are proposed, these will be introduced in the relevant technical chapter of this Scoping Request.
- 2.1.3 The ES must contain the information specified in Regulation 14(2) of the EIA Regulations and must meet the requirements of Regulation 14(3) of the EIA Regulations. It must also include any additional information specified in Schedule 4 of the EIA Regulations which is relevant to the specific characteristics of the particular development or type of development and the environmental features likely to be significantly affected.
- 2.1.4 The EIA is being undertaken based on a number of related activities which will include the following:
- Establishing existing baseline conditions;
 - Consultation with the relevant statutory and non-statutory consultees throughout the process;
 - Consideration of local, regional and national planning policies, legislation and guidelines as relevant to EIA;
 - Consideration of technical standards for the development of significance criteria;
 - Review of secondary sources, previous environmental studies and publicly accessible databases and information;
 - Physical surveys and monitoring;
 - Desk based assessment;
 - Computer modelling (where appropriate and proportionate); and
 - Expert opinion.

- 2.1.5 The following Advice Notes have been considered for the preparation of this report, and will be considered as the EIA progresses²⁷:
- PINS Advice Note Seven: EIA: process, preliminary environmental information and ESs (June 2020)²⁸;
 - PINS Advice Note Nine: Rochdale Envelope (July 2018)²⁹;
 - NSIPs: Advice on working with public bodies in the infrastructure planning process (2025)³⁰;
 - PINS Guidance: NSIPs: Advice on Cumulative Effects Assessment (September 2025)³¹; and
 - Solar Scoping: NSIPs: Technical Advice Page for Scoping Solar Development (2025)³².
- 2.1.6 The main objective of the EIA process is to present a clear, impartial assessment of the likely significant beneficial and adverse environmental effects of the Scheme, including direct and indirect effects, informing the design of the Scheme and documenting the application of the mitigation hierarchy to minimise residual environmental effects.

2.2 Assessment Approach

- 2.2.1 Each environmental topic to be considered in the ES will be given a separate chapter.

²⁷ Planning Inspectorate (2025) Nationally Significant Infrastructure Projects: Advice on EIA Notification and Consultation. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-eia-notification-and-consultation>

²⁸ Planning Inspectorate (2025) Advice Note Seven: Environmental Impact Assessment: process, preliminary environmental information and environmental statements. Available at <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-an/nationally-significant-infrastructure-projects-advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-an>

²⁹ Planning Inspectorate (2025) Advice Note Nine: Rochdale Envelope. Available at: <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-nine-rochdale-envelope/nationally-significant-infrastructure-projects-advice-note-nine-rochdale-envelope>

³⁰ Planning Inspectorate (2025) Nationally Significant Infrastructure Projects: Advice on working with public bodies in the infrastructure planning process. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-working-with-public-bodies-in-the-infrastructure-planning-process>

³¹ Planning Inspectorate (2025) Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-cumulative-effects-assessment>

³² Planning Inspectorate (2025) Solar Scoping: Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-technical-advice-page-for-scoping-solar-development>

2.2.2 Each of the technical assessments for the environmental topics will use the following approach and structure:

- Introduction;
- Legislation, Policy and Guidance;
- Summary of consultation;
- Baseline Conditions;
- Assessment Methodology and significance criteria;
- Embedded Mitigation;
- Identification and Assessment of Effects;
- Mitigation Measures;
- Residual Effects;
- Cumulative Effects (in topic);
- Conclusion;
- References.

2.2.3 The environmental topics to be scoped out in their entirety are considered within Chapter 5: Topics to be Scoped Out.

Legislation, policy and guidance

2.2.4 Each of the chapters in this Scoping Report includes a section on legislation, policy and guidance relevant to the chapter topic. This ensures legal compliance and the setting of clear criteria and procedures for the ES, as applicable to each topic.

Baseline conditions

2.2.5 To evaluate likely significant environmental effects, existing baseline conditions will be measured through a combination of desktop and physical surveys, and monitoring of the Sites and the surrounding area, including the CRC Search Area. Once the baseline conditions are established, this information is used to identify and assess the sensitivity of receptors on and near the Site and CRC Search Area as well as changes that may take place during the construction, operation and decommissioning of the Scheme. Any identified likely significant effects on these receptors will be assessed and reported in the ES.

2.2.6 The data collected to establish the baseline conditions for the purposes of this Scoping Report have been gathered from a variety of sources, including the following:

- Physical surveys and monitoring;
- Publicly accessible records and databases; and
- Environmental survey information that has been submitted for other developments in the area.

- 2.2.7 The methods of data collection have been discussed with the relevant consultees where appropriate and possible. These discussions will continue through to submission of the DCO application as the EIA progresses.

Spatial Scope

- 2.2.8 The individual topic chapters in this Scoping Report (chapters 5 to 16 inclusive) describe and identify the Study Areas, within which that assessment is focused. The Study Areas are in most cases defined by the nature of potential impacts and the location of potentially affected environmental resources or receptors.

Temporal scope: assessment years

- 2.2.9 Within this Scoping Report, the individual chapters assess the potential impacts over the anticipated project-specific time periods set out below. These timescales represents the expected durations for each stage of the Scheme and will be used as the basis for the environmental assessment.
- Construction – phased over 24 months;
 - Operation – up to 60 years; and
 - Decommissioning – phased over 12-24 months.

2.3 Assessment of effects

- 2.3.1 In line with standard environmental assessment methodology, the significance of an effect is determined as a function of both receptor sensitivity and the magnitude of the impact. The sections below set out the approach used to define receptor sensitivity and determine impact magnitude. These two elements are then combined to establish overall effect significance, which is derived using a Leopold matrix³³, ensuring a consistent and transparent evaluation process.
- 2.3.2 A Leopold matrix is a widely used environmental evaluation tool that systematically cross-references project impacts against environmental receptors to determine the nature, magnitude and significance of potential effects. By structuring the assessment in this tabular format, the matrix enables a transparent and replicable decision-making process, ensuring that both the scale of the impact and the sensitivity of the receptor are considered consistently across all topic areas. Professional

³³ The Leopold matrix is an established impact-assessment framework originally developed to support structured evaluation of environmental effects by mapping interactions between project actions and environmental receptors. See: Leopold, L.B. et al. (1971) A Procedure for Evaluating Environmental Impact, U.S. Geological Survey Circular 645. Available at: <https://pubs.usgs.gov/circ/1971/0645/report.pdf>

judgement is used to validate the evaluation from the Leopold matrix.

- 2.3.3 The methodology for determining environmental receptor sensitivity will be assessed using the criteria set out in Table 2-1. This is based on National Highways' Design Manual for Roads and Bridges (DMRB) LA 104 Environmental Assessment and Monitoring³⁴ standard. Whilst developed for highways schemes, the method set out in DMRB LA 104 is a general EIA method that is applicable to any scheme and for all environmental topics.

Table 2-1 Receptor Sensitivity

Sensitivity	Definition
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

- 2.3.4 The methodology for determining the magnitude of the effect will be assessed using the following criteria shown in Table 2-2.

³⁴ National Highways, 2020, Design Manual for Roads and Bridges, Sustainability and Environment Appraisal, LA 104 Environmental Assessment and Monitoring. Available at: <https://www.standardsforhighways.co.uk/tse/attachments/by-attachment-id/c326ef05-0bda-4e02-9903-de8d02640cea?inline=true>

Table 2-2 Methodology for Determining Impact Magnitude

Impact Magnitude		Criteria
Major	Adverse	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.
	Beneficial	Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality.
Moderate	Adverse	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements.
	Beneficial	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Minor	Adverse	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring.
Negligible	Adverse	Very minor loss or detrimental alteration to one or more characteristics, features or elements.
	Beneficial	Very minor benefit to or positive addition of one or more characteristics, features or elements.
No Change		No loss or alteration of characteristics, features or elements; no observable impact in either direction.

2.3.5 Significance will be characterised as adverse, beneficial, or neutral, and the scale of significance determined by reference to the matrix in Table 2-3.

Table 2-3 Effect Significance

	Impact Magnitude				
	No Change	Negligible	Minor	Moderate	Major
Receptor Sensitivity	Very High	Neutral	Slight	Moderate or Large	Large or Very Large
	High	Neutral	Slight	Slight or Moderate	Moderate or Large
	Medium	Neutral	Neutral or Slight	Slight	Moderate or Large
	Low	Neutral	Neutral or Slight	Neutral or Slight	Slight or Moderate
	Negligible	Neutral	Neutral	Neutral or Slight	Slight

2.3.6 Generic definitions for the classification of effects are provided below:

- **Large or Very Large Significance:** This level indicates that the proposed project or activity is likely to cause severe, potentially irreversible, and widespread adverse impacts on the environment. Extensive assessment and mitigation measures, often leading to significant redesigns, may be necessary to minimise adverse effects.
- **Moderate Significance:** This level indicates that the project or activity is likely to cause adverse impacts on the environment. These impacts may be localised, temporary, or reversible, requiring mitigation measures.
- **Minor Significance:** This level indicates that the proposed project or activity is expected to have minimal adverse impacts on the environment, typically involving minor disturbances, they generally do not pose significant environmental risks.
- **Negligible Significance:** This level indicates that the project or activity is not expected to have any discernible adverse impacts on the environment, with impacts so minor that they can be disregarded. Negligible significance impacts generally require no mitigation measures or further assessment.

2.3.7 Impacts that are identified in the ES of a moderate significance or greater (as highlighted grey in Table 2-3 above) will be considered significant. For impacts that fall within the “Slight or Moderate” category, professional judgement will be applied to determine whether the effect should be treated as significant. This judgement will take into account factors such as the number and sensitivity of affected receptors, the duration, reversibility and context of the effect, and the degree of confidence in the available data.

- 2.3.8 Professional judgement is employed throughout the process to ensure that the final assessment conclusions can be justified. This is employed at the stage where impact magnitude is determined so that the method for determining significance set out in the Leopold matrix is robust, transparent, and consistently applied.

2.4 Cumulative Effects

- 2.4.1 Paragraph 5 of Schedule 4 to the EIA Regulations states that the ES should include:

“a description of the likely significant effects of the development on the environment resulting from... (e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources”.

- 2.4.2 PINS Guidance³¹ on cumulative effects assessment relevant to NSIPs sets out relevant guidance for practitioners. The staged approach detailed considers the level of certainty of surrounding projects and the need to assess development plans and future development consents; acknowledging that there will be limited information available on the relevant proposals to base such assessment on.

- 2.4.3 In-combination effects occurs when receptors are subject to residual effects under more than one environmental topic.

- 2.4.4 The approach to assessing in-combination effects is presented in Chapter 16 (Cumulative Effects) of this Scoping Report.

2.5 Mitigation measures

- 2.5.1 Paragraph 7 of Schedule 4 of the EIA Regulations notes that an ES should include:

“a description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset and should cover both the construction and operation phases.”

- 2.5.2 The mitigation measures specified can relate to both methods of construction or particular design elements that are to be incorporated within the completed Scheme. Many mitigation measures are accepted good practice during the construction and operation of schemes such as this, and the current regulatory context, and will be integral to the design of the Scheme (and are referred to as 'embedded mitigation'). These measures will be described within the ES, but taken account of as part of the assessment of likely effects of the Scheme.
- 2.5.3 Where the EIA identifies likely significant adverse impacts, and those impacts cannot be avoided, additional mitigation measures will be identified to reduce these effects to acceptable levels where practicable. Any effects that endure following the implementation of additional mitigation measures are defined as 'residual effects'.
- 2.5.4 Embedded mitigation measures could include, for example:
- Sustainable Drainage Systems (SuDS);
 - Incorporation of buffer distances from environmental receptors;
 - Designing the layout of the Scheme to minimise impacts on sensitive receptors;
 - Amendments to the size and scale of the Scheme, taking into account particular receptors and the potential impacts to them; and
 - Provision of and compliance with an environmental management plan.
- 2.5.5 The following management plans are typically submitted as part of the DCO application and secure the implementation of embedded mitigation measures:
- outline Construction Environmental Management Plan (oCEMP);
 - outline Operational Environmental Management Plan (oOEMP);
 - outline Decommissioning Environmental Management Plan (oDEMP);
 - outline Landscape and Ecological Management Plan (oLEMP);
 - outline Battery Safety Management Plan (oBSMP);
 - outline Soil Management Plan (oSMP);
 - outline Waste Management Plan;
 - outline Ecological Protection and Mitigation Strategy (oEPMS);
 - outline Construction Traffic Management Plan (oCTMP); and
 - outline PRow Management Plan (oPRowMP).
- 2.5.6 Additional mitigation measures could include for example:
- Provision of bunding to reduce noise impacts;
 - Fencing to reduce glint and glare impacts; and

- Additional planting and hedgerow improvements to reduce visual impacts.

2.6 Residual Effects

- 2.6.1 Each technical chapter of the ES will have a residual effects section that will outline the significance of each environmental effect resulting, after the implementation of the embedded and additional mitigation measures.

2.7 Transboundary Effects

- 2.7.1 No impacts are likely to extend beyond the jurisdiction of the UK, with the exception of potential GHG emissions. GHG emissions will be minimal given the nature of the Scheme, which will not emit GHG emissions during its operation except for limited emissions associated with maintenance vehicles and repair works.
- 2.7.2 A Transboundary Effects Screening Matrix is provided in of Volume III, Appendix A2.1.

2.8 Consideration of Alternatives

- 2.8.1 Section 14(2)(d) of the EIA regulations states that the ES should include:
- “a description of the reasonable alternatives studied by the applicant, which are relevant to the Scheme 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.”*
- 2.8.2 Moreover, paragraph 2 of Schedule 4 of the EIA Regulations notes that an ES should include:
- “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.”*
- 2.8.3 To ensure compliance with the legal requirements as identified above, the ES will include a chapter setting out the alternatives considered and the main reasons for selecting the chosen option. The chapter will focus on the following aspects of option selection:
- Site selection;
 - Alternative technologies;

- The layout of the Scheme;
- CRC options; and
- The location of supporting infrastructure.

2.8.4 The consideration of “no development” as an alternative to the Scheme will not be explored in the ES. This is due to the consideration of “no development” being unreasonable as it would not deliver the generation of renewable electrical power and energy storage proposed, which is designated as CNP infrastructure by the UK government.

2.9 Rochdale Envelope

2.9.1 PINS Advice Note Nine²⁹ sets out guidance on the use of the ‘Rochdale Envelope’ as a way of assessing the Scheme comprising EIA development where uncertainty exists and necessary flexibility is sought. The Note sets out that there are key points and documents required where the implications of seeking that flexibility need to be addressed:

- During pre-application consultation process;
- Within the ES; and
- Within the description of the project in the application documents, particularly the DCO but also other application documents identified elsewhere in this note.

2.9.2 The Applicant will seek to utilise developments in technology as this becomes available, and as such will utilise flexibility within the DCO where this is possible.

2.9.3 To ensure that the EIA identifies all possible environmental effects and mitigation, the maximum design parameters which could be allowed within the application will be assessed. This will ensure that a worst case scenario will be assessed and that any change in design, post consent, will be within the envelope of the assessments and could not result in greater or new environmental effects than stated in the ES. This aligns with the precautionary principle.

2.10 Structure of the ES

2.10.1 The ES, prepared in compliance with Regulation 14(3) and Schedule 4 of the EIA Regulations, will provide a detailed description of the Scheme and outline the EIA methodology, including technical approaches and supporting data. It will set out the mitigation and enhancement measures adopted, assess the likely significant environmental effects, and include a schedule of proposed mitigation and monitoring arrangements. Additionally, the ES will present residual impacts and evaluate cumulative effects and impact interactions.

2.10.2 The ES will be structured into four volumes, as follows:

- Volume I: ES Non-Technical Summary: A non-technical summary will accompany the ES, providing a clear and concise description of the Scheme, an overview of the likely significant effects in plain language, and the mitigation measures proposed to avoid or reduce those effects.
- Volume II: ES Main Report: The location of the key environmental information as set out in Table 2-4
- Volume III: Figures: Technical drawings, maps and diagrams that support the main text in Volume I will be included in Volume II.
- Volume IV: Technical Appendices: Technical data and supporting reports for Volume I chapters.

Table 2-4 Proposed Structure of Volume II ES Main Report

Chapter Number	Chapter Title	Chapter Description
Chapter 1	Introduction	Introduction to the ES, EIA regulations, details of Applicant, purpose of the Scoping Report, consultation & engagement, legislative context and planning policy.
Chapter 2	EIA Methodology	Describes the overall approach to the EIA, including the EIA consultation team, structure and content of the ES, legislative and policy framework, baseline data collection, spatial and temporal scope, assessment methods, assumptions and limitations, scoping and consultation, assessment of cumulative, mitigation hierarchy, residual effects, consideration of alternatives, and application of the Rochdale Envelope.
Chapter 3	Scheme & its Wider Context	Site description and details of the Scheme.
Chapter 4	Alternatives and Design Evolution	Describes the reasonable alternatives studied by the Applicant, provides a comparison of the environmental effects of those alternatives and identifies the reasoning for the selection of the Scheme based on environmental constraints.
Chapter 5	Scheme Description	Details of anticipated programme for development and construction methodology.
Chapter 7	Ecology and Biodiversity	Effects of the Scheme on ecology and biodiversity.

Chapter Number	Chapter Title	Chapter Description
Chapter 8	Ground Conditions and Contamination	Effects of the Scheme ground conditions and ground contamination.
Chapter 9	Soils and Agriculture	Effects of the Scheme on soils and agricultural land.
Chapter 10	Climate Change	Effects of the Scheme on climate change.
Chapter 11	Transport and Access	Effects of the Scheme on traffic and access, including relating to driver severance and delay, pedestrian severance and delay, pedestrian amenity, accidents and safety and hazardous and dangerous loads.
Chapter 12	Noise and vibration	Effects of the Scheme on noise and vibration.
Chapter 13	Landscape and Visual	Effects of the Scheme on landscape and visual amenity.
Chapter 14	Historic Environment	Effects of the Scheme on built heritage and below-ground archaeology.
Chapter 15	Population and Human Health	Effects of the Scheme on population and human health.
Chapter 16	Glint and Glare	Glint and Glare effects on surrounding receptors caused by the scheme.
Chapter 17	Cumulative Effects	Summary of the cumulative and in-combination effects of the Scheme.
Chapter 18	Other Environmental Matters	Chapter detailing other matters which do not warrant an ES chapter.
Chapter 19	Summary and Residual Effects	Summary of the residual effects of the Scheme.

3 The Site and its Wider Context

3.1 Introduction

- 3.1.1 This chapter describes the Site and its wider environmental context and is supported by a constraints map of the environmental constraints discussed in this Chapter, displayed in Volume II, Figure 3.1.

3.2 The Site

- 3.2.1 The Site comprises approximately 1,062 ha of land across four connected sub-Sites, excluding the CRC. The Site is located within the administrative boundaries of WoCC, WaCC, WyDC and SoADC, and the CRC extends into the administrative area of ReBC. The following sections describe each of the four sub-Sites and the CRC.

Site 1

- 3.2.2 Site 1 is the northernmost and westernmost Site of the four and has an area of approximately 422.6 ha. Site 1 is further divided into five sub-Sites: 1(a) through 1(e).
- 3.2.3 As is the case with all the Sites, Site 1 primarily consists of medium to large arable fields set in a generally undulating rural landscape.
- 3.2.4 Site 1 is located within both WyDC and the SoADC administrative areas, with the county boundary intersecting sub-Site 1(c). The closest settlements to Site 1 are the villages of Abbots Morton to the west, Weethley and Wood Bevington to the east, Cock Bevington to the south east and Rous Lench to the south-west.
- 3.2.5 No major roads intersect Site 1, however Alcester Road, a minor road, runs east-west through Site 1 and separates sub-Site 1(e) from the other sub-Sites within Site 1. Six PRow routes are located within Site 1, linking with the extensive network of PRowS in the area.
- 3.2.6 No major rivers run through Site 1; however, the Ban Brook runs north-south through sub-Sites 1(c) and 1(d) and the Piddle Brook runs south-north through sub-Sites 1(a) and 1(b).
- 3.2.7 A representative image of Site 1 is shown in Insert 3-1.



Insert 3-1 Site 1

Site 2

- 3.2.8 Site 2 has an area of approximately 319.8 ha and primarily consists of gently undulating hedgerow bound agricultural land, similar to Site 1. As with Site 1, Site 2 is divided into five sub-Sites: 2(a) through 2(e). Parts of sub-Site 2(a) and 2(d) were formerly quarried, with remnants still evident, such as access tracks and former extraction pits that are now ponds across the sub-Sites.
- 3.2.9 Site 2 is located entirely within the SoADC region. The closest settlements to Site 2 are the villages of Dunnington to the west, Wixford to the north-east, Broom to the east, Bidford-on-Avon to the south-east and Salford Priors to the south.
- 3.2.10 Unlike Site 1, Site 2 is intersected by the A46 which runs north-south between Alcester and Evesham. The road separates sub-Sites 2(b) and 2(e) from the other sub-Sites. Six PRoW routes are located within Site 2.
- 3.2.11 The River Arrow runs north-south along the eastern border of sub-Site 2(d) and 2(e), and the Ban Brook runs north-south along the southern borders of sub-Sites 2(c) and 2(d).
- 3.2.12 A representative image of Site 2 is shown in Insert 3-2.



Insert 3-2 Site 2

Site 3

- 3.2.13 The easternmost Site 3 has an area of approximately 282.5 ha and primarily consists of gently undulating agricultural land, similar to the other sub-Sites. Site 3 is spread over a wider area compared with Sites 1, 2 and 4, and is divided into a total of seven sub-Sites: 3(a) through 3(g).
- 3.2.14 Unlike Sites 1, 2, and 4, Site 3 is not contiguous, but split into four closely located but distinct groups. The first group comprises sub-Site 3(a) located at the westernmost extent of Site 3. To the southeast, and separated by a field, is the second group comprising sub-Site 3(b). To the southeast of sub-Site 3(b), and separated from it by another field, is the southernmost grouping comprising sub-Sites 3(c) and 3(d). To the north of sub-Site 3(d) and separated by a field is the fourth grouping comprising sub-Sites 3(e), 3(f), and 3(g).

- 3.2.15 Sub-Sites 3(a), 3(c), 3(d) and 3(e) are located entirely within the WyDC administrative area; sub-Site 3(b) is located within both the WyDC and SoADC areas, and sub-Sites 3(f) and 3(g) are located entirely within the SoADC area. The closest settlements to Site 3 are the villages of Cleeve Prior to the west, Bickmarsh to the north, Dorsington to the east and Ullington to the south.
- 3.2.16 No major roads intersect Site 3; however, the B4085 Cleeve Road borders sub-Site 3(a) and 3(b), and Buckle Street, a minor road, runs north-south and separates sub-Sites 3(c) and 3(d). The long-distance PRow route, The Heart of England Way, passes through sub-Site 3(g) and a further two PRowS are located within Site 3.
- 3.2.17 No major rivers run through Site 3; however, an Open River runs north-south along the boundary of sub-Sites 3(b) and 3(c), and another runs south-north along the boundary of sub-Sites 3(f) and 3(g).
- 3.2.18 A representative image of Site 3 is shown in Insert 3-3.



Insert 3-3 Site 3

Site 4

- 3.2.19 Site 4 is the southernmost of the four Sites and has an area of approximately 37.2 ha. It is the smallest Site and has no sub-Sites.

- 3.2.20 Site 4 is located within the WyDC administrative area. The closest settlement to Site 4 is the village of South Littleton, located to the north and west of Site 4.
- 3.2.21 No major or minor roads intersect Site 4; however, to the north is Shinehill Lane, a minor road that runs east-west between South Littleton and Honeybourne.
- 3.2.22 No major rivers run through Site 4; however, the Gate Inn Brook flows along the northern border of Site 4. There is one PRow that runs through Site 4.
- 3.2.23 A representative image of Site 4 is shown in Insert 3-4.



Insert 3-4 Site 4

CRC

- 3.2.24 The CRC Search Area represents the area of search for a CRC to connect the Sites to the NETS via the Feckenham 400 kilovolt (kV) National Grid substation.
- 3.2.25 At this early stage of Scheme development, a CRC Search Area has been established following an options appraisal and route selection process.

- 3.2.26 The Search Area will be refined as the design of the Scheme is developed and additional technical surveys are carried out, and the final CRC will be established for submission of the DCO application and assessed in the ES.
- 3.2.27 Within this CRC, there will be flexibility for the final design of the CR and its associated construction, including the siting of temporary construction compounds. For the purposes of this scoping assessment, a worst-case scenario has been assessed, assuming the final CR could be anywhere within the CRC Search Area.
- 3.2.28 The CR Search Area is shown in Volume II, Figure 1.2.

3.3 Wider context

Features

- 3.3.1 Land use within the Site is primarily arable farming with crop cover present for most of the year. Fields are separated by natural and semi-natural vegetation such as hedgerows and tree lines. This is generally concentrated along road and watercourse corridors, with a few isolated trees present within open fields. Existing farm access tracks and field entrances provide connectivity across the sub-Sites.
- 3.3.2 Small parcels of woodland are located within close proximity to the Site. These wooded areas border the Site boundary providing a natural backdrop to the Site, helping to maintain the rural character of the area.
- 3.3.3 An existing 11.2 ha solar farm is located adjacent to the south of sub-Site 1(a).
- 3.3.4 The closest airfield is Bidford Gliding and Flying Club, located adjacent to sub-Site 3(b). Throckmorton Airfield is also located approximately 8 km southwest of Site 1.

Settlements and access

- 3.3.5 The Site lies within a predominantly rural landscape, characterised by a dispersed pattern of villages, with agricultural land forming the dominant land use. Individual farm holdings, rural dwellings and small commercial business properties are located within and in the immediate vicinity of the Site.
- 3.3.6 Larger towns are located in the wider vicinity of the Site; Alcester is located approximately 2 km north of Site 2, and Evesham is located approximately 2.7 km southwest of Site 4.
- 3.3.7 The Sites are predominantly connected through a local road network of C-roads and unclassified rural lanes.

Water environment

- 3.3.8 Several rivers and watercourses are present within the vicinity of the Site. The River Avon Statutory Main River sits between Sites 2 and 3, located approximately 485 m north of sub-Site 3(a). The River Arrow Statutory Main River is adjacent to sub-Sites 2(b) and 2(e) on the eastern boundary of the two sub-Sites. Littleton Brook Statutory Main River is located approximately 80 m west of Site 4.
- 3.3.9 Parts of the Site fall within Flood Zones 2 and 3 and are at risk from surface water flooding. Parts of Site 2 and Site 4 are predominately located within these Flood Zones; vegetation cover is characterised by flood-tolerant plants, see Insert 3-5 below.



Insert 3-5 Flood-tolerant plants within Site 2

Historic designations

- 3.3.10 Several historic designations are located within close proximity to the Site. There are six Conservation Areas within 1 km of the Site, the closest is Cleeve Prior Conservation Area, located immediately adjacent to Site 3.
- 3.3.11 There are multiple Listed Buildings within the immediate vicinity of the Site; the closest asset to each of the Sites are:

- Site 1: Turnpike Cottages Grade II Listed Building is located approximately 25 m north of sub-Site 1(c);
- Site 2: Wixford Bridge Grade II Listed Building is located immediately adjacent to sub-Site 2(b);
- Site 3: Barn to North of Sharrow Grade II Listed Building is located approximately 50 m west of sub-Site 3(b); and
- Site 4: Long Hyde Farmhouse Grade II Listed Building is located approximately 370 m northwest.

3.3.12 Nearby Registered Parks and Gardens include Ragley Hall, located adjacent to sub-Site 2(a) and Rous Lench Court, located approximately 80m west of sub-Site 1(a). Both are designated as Grade II* designations.

3.3.13 The Enclosures $\frac{3}{4}$ mile (1.2 km) N of Salford Priors Scheduled Monument is located within the boundary of Site 2; however, this area provides existing access between sub-Sites 2(d) and 2(e). Medieval settlement at Ullington Scheduled Monument is located approximately 375 m south of Site 3 and Cookshill Nunnery, located approximately 430 m north Site 1.

Landscape designations

3.3.14 The Site lies within both the Arden National Character Area (NCA) and the Severn and Avon Vales NCA. Both NCAs are characterised by open landscapes made up of fragmented agricultural and woodland parcels.

3.3.15 The provisional agriculture land classification within the Site comprises Grade 2 (excellent to very good) and Grade 3 (good to moderate) agricultural land, along with areas of Grade 4 (poor to very poor) agricultural land.

3.3.16 Several historic landfill sites located within 500 m of the Site, the closest is located within Site 2.

Ecological designations

3.3.17 Three Sites of Special Scientific Interest (SSSIs) are located within 2 km of the Site:

- Broom Railway Cutting SSSI (geological designation) which is located approximately 95 m east of sub-Site 2(e);
- Windmill Hill SSSI which is located approximately 1.2 km north-west of Site 4; and
- Long Meadow, Thorn SSSI is located approximately 1.7 km northwest of sub-Site 1(b).

3.3.18 Three Special Areas of Conservation (SAC) are located within 30 km of the Site:

- Brendon Hill is located approximately 10.5 km southwest of Site 4;
- Dixon Wood is located approximately 17 km south of Site 4; and
- Lyppard Grande Ponds is located approximately 14.7 km west of Site 1.

3.3.19 Several (LWS) within both the WoCC and WaCC regions are located within the vicinity of the Site; the closest is adjacent to Site 3.

3.3.20 There are a number of priority habitats within the vicinity of the Site, including deciduous woodland and traditional orchard. Several parcels of ancient woodland are also within the vicinity of the Site, the closest are located immediately adjacent to Site 1 and Site 2.

4 Scheme Description

4.1 Overview

- 4.1.1 The Scheme comprises the construction, operation, maintenance, and decommissioning of a solar PV electricity generating station, and associated development including BESS, and grid connection Infrastructure.
- 4.1.2 The CRC is the area within which underground cables will be located to connect the Solar Array Sites to each other, and to the National Grid at the existing National Grid Electricity Transmission (NGET) Feckenham 400 kV Substation, located approximately 8 km north of the nearest Site. The CRC will sit within the wider CR Search Area, which will be refined as the development of the Scheme progresses prior to submission of the DCO application.
- 4.1.3 The Scheme would have a generating capacity in excess of 100 MW.

4.2 Design Parameters Used for Scoping

- 4.2.1 Table 4-1 sets out the parameters that have been used for assessment by each of the technical topics in the Scoping Report to explain the likely significant effects of the Scheme on the environment and set out the proposed approach and methodology for further assessment. These parameters have also been used to identify the environmental assessment topics that the Applicant proposes to scope out of further assessment within the ES, and to explain the reasons for this.

Table 4-1 Design parameters

Scheme Component	Parameter Type	Maximum Design Parameter / Design Commitment
Tracking Panels (Option A)	Maximum height of solar panels above ground level	4.5m at greatest inclination.
	Minimum height of the lowest part of the solar panel above the ground level	0.4m.
	Indicative orientation and slope	The tracking solar modules will be aligned in north-south rows, and incline to the east or west up to a maximum inclination of 60 degrees from horizontal.
	Solar panel mounting and slope	Metal frames that hold solar panels in rows, either secured via metal posts driven into ground to a depth of up to 4m or, subject to ground conditions and further environmental assessment, weighed down using concrete feet.
	Solar panel colour	The solar modules will be either black, dark blue or similar.
	Solar panel type	Bifacial monocrystalline panels.
	Separation distance between rows	Minimum of 2.5m between rows of tracking panels.
Fixed Panels (Option B)	Maximum height of solar panels above ground level	3.5m.
	Minimum height of the lowest part of the solar panel above the ground level	0.4m.
	Indicative orientation and slope	The fixed solar modules will be aligned in east-west rows, and incline to the south at between 10 and 35 degrees from horizontal.

Scheme Component	Parameter Type	Maximum Design Parameter / Design Commitment
	Solar panel mounting structure	Metal frames that hold solar panels in rows, either secured via metal posts driven into ground to a depth of up to 4m or, subject to ground conditions and further environmental assessment, anchored using concrete feet.
	Solar panel type	Bifacial monocrystalline panels.
	Solar panel colour	The solar modules will be either black, dark blue or similar.
	Separation distance between rows	Minimum of 2.5m between rows of fixed panels.
Integrated Conversion Units	Maximum dimensions	18m by 5m and a maximum height of 4.5m.
	Materials	The equipment will be housed in a metal container in keeping with the prevailing surrounding environment, often with a grey or green painted finish.
	Foundations	Equipment will sit on a concrete foundation slab, strips or footings for each of the units and a levelling layer of aggregate with a maximum depth of 0.8m; or a concrete plinth set atop the topsoil where non-ground-penetrative works are required. Piling will only be required where ground conditions are exceptionally poor.
Disaggregated Conversion Units	Inverters	9m by 6.5m and a maximum height 4.5m.
	Transformers	6.5m by 5.5m and a maximum height 4.5m.
	Switchgear	6.5m by 2.5m and a maximum height 4.5m.
	Material	The equipment will be housed in a metal container in keeping with the prevailing surrounding environment, often with a grey or green painted finish.
	Foundations	Equipment will sit on a concrete foundation slab, strips or footings for each of the units and a levelling layer of aggregate with a maximum depth of 0.8m; or a

Scheme Component	Parameter Type	Maximum Design Parameter / Design Commitment
		concrete plinth set atop the topsoil where non-ground-penetrative works are required. Piling will only be required where ground conditions are exceptionally poor.
Sub-distribution Switch Rooms	Maximum dimensions	18m by 5m and a maximum height of 4.5m.
	Foundations	Equipment will sit on a concrete foundation slab, strips or footings for each of the units and a levelling layer of aggregate with a maximum depth of 0.8m; or a concrete plinth set atop the topsoil where non-ground-penetrative works are required. Piling will only be required where ground conditions are exceptionally poor.
Fencing and Security	BESS and Substations	Palisade fencing with a 3m maximum height.
	Perimeter Fencing	Deer fencing with a 2.5m maximum height.
	Security	Pole mounted CCTV systems around the perimeter of the Sites. Galvanised steel painted green or grey poles with a maximum height of 3m.
400kV Substations	Maximum compound area	6ha.
	Maximum height	15m to the top of the busbars.
	Relay, control and switch rooms	Maximum dimensions of 7m by 21m and maximum height of 4.5m.
	Housing	Maximum height of 6m.
	Foundations	Onsite infrastructure will be mounted on a concrete base or monolith plinth to a maximum depth of 1m. If a piling solution is required, piles to a maximum depth of 15m would be used.
	Maximum compound area	3ha.

Scheme Component	Parameter Type	Maximum Design Parameter / Design Commitment
132kV Substations	Maximum height	9.5m to the top of the busbars.
	Relay control and switch rooms –	Maximum dimensions of 7m by 21m and maximum height of 4.5m.
	Foundations	Onsite infrastructure will be mounted on a concrete base or monolith plinth to a maximum depth of 1m. If a piling solution is required, piles to a maximum depth of 15m would be used.
BESS	BESS enclosures	4.5m maximum height.
	BESS maximum compound area	15ha.
	Foundations	The foundations for the BESS containers will either be a reinforced concrete base to a maximum depth of 1m, or, if a piling solution is required, piles to a maximum depth of 12m would be used.
	Water Storage	3.5m maximum height.
Access	BESS Area and Substation Access Tracks	Maximum 6m wide road (8m at passing places) constructed of asphalt over a levelling layer of substrate. The access points from the public highway and bends in the track would be wider to accommodate abnormal indivisible load turning space.
	Solar Array Access Tracks	A maximum of 3.5m wide (6m at passing places) constructed of hardcore or gravel over a levelling layer of substrate. The access points from the public highway will typically comprise reinforced concrete.
	Parking	Parking bays will be provided at the Substations and BESS Area.

Scheme Component	Parameter Type	Maximum Design Parameter / Design Commitment
On Site Cables	Cable Type	On site components such as Solar Panels, Conversion Units and BESS Containers will be connected with 33 kV, 1.8 kV, 400 V and lower voltage control cables to suit the detailed design.
	Indicative cable trench dimensions	Maximum 1.6m width and 1.2m depth. In some circumstances there may be a requirement for multiple trenches adjacent to each other.
Grid Connection Cables	Cable Type	The Conversion Units, Sub-distribution Switch Rooms, 132kV Substations and the Sites would be connected to the 400kV Feckenham Substation via 33kV to 132kV Interconnecting Cables. The 400kV Substation and the National Grid Substation would be connected via 400kV cables as well as associated fibre optic cables and low voltage control cables.
	Cable trench – maximum width	Individual trenches typically 1.2m in width. Where multiple circuits are required in a single trench, the maximum width of any individual trench would be up to 7m width. In some circumstances there may be a requirement for multiple trenches within the CRC.
	Cable trench - maximum depth	Typically, up to 2m depth subject to design and ground conditions.
	Fencing	Temporary Heras or similar fencing.
	Horizontal Directional Drilling (HDD)	25m x 25m launch / receptor pit working area.
National Grid Connection	PoC	Feckenham 400kV Substation.

4.3 Components and layout principles

4.3.1 The Scheme comprises the following principal components and Associated Development:

- Solar PV Arrays;
- Mounting Structures (as either single-axis tracker and/or fixed);
- Sub-distribution Switch Rooms
- Conversion Units;
- Storage Containers;
- Substations;
- BESS;
- Fencing and Security;
- On Site Cables;
- Grid Connection Cables;
- Site Accesses and Access Tracks; and
- Landscape and Ecological Mitigation and Enhancement Areas.

4.3.2 Further details of each of the key Scheme components as listed above are set out below.

4.3.3 Appropriate setbacks and buffers will be included within the design to limit the environmental impacts caused by the Scheme during construction, operation and decommissioning. These setbacks and buffers will be developed during design based on consultation feedback, relevant statutory guidance, baseline assessments and professional judgement.

Solar PV Arrays

4.3.4 The Solar PV Arrays are made up of connected panels which convert sunlight/daylight into electrical current. They are made up of a series of PV cells beneath a layer of toughened glass. PV technology is developing rapidly, and technological advancements may be available at the time of construction.

Solar Panel Mounting Structure

4.3.5 The Solar Panel Mounting Structure is a metal frame that holds the solar panels in place and secures them to the ground via metal posts driven into ground, typically between 1.5m to 4.0m in depth (dependent on ground conditions).

4.3.6 In areas where archaeological protection is required or where ground conditions dictate, concrete feet or other non-ground penetrative techniques will be considered as an alternative option to secure the mounting structures to the ground.

- 4.3.7 There are two options for solar panels being considered: Tracking Panels (Option A) and Fixed Panels (Option B). The use and distribution of these across the Sites will be subject to further consideration as the design of the Scheme progresses.

Tracking Panels (Option A)

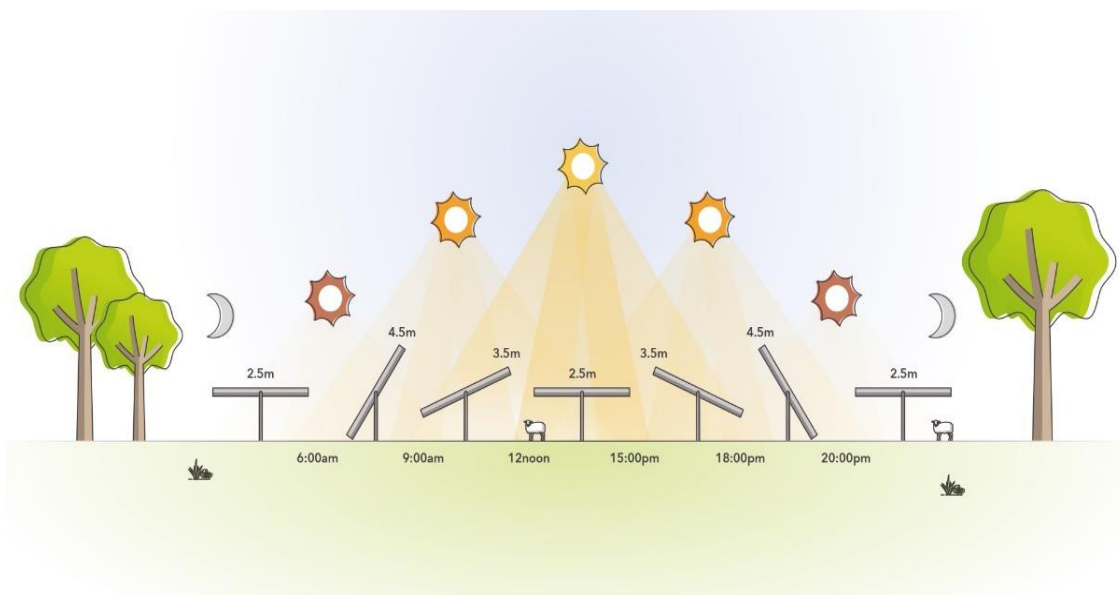
- 4.3.8 A tracker system involves attaching the solar panels to a motorised table that can move in relation to the sun. This allows for optimal power generation throughout the day. The solar panels would be stored horizontally overnight. The Scheme would utilise a single-axis tracker system which tilts the solar panels around a horizontal north-south axis thus tracking the movement of the sun from east to west.



Insert 4-1 Typical Tracker Solar Panels in an Angled Orientation



Insert 4-2 Typical Tracker Solar Panels in a Near Flat Orientation



Insert 4-3 Illustration Tracker Solar Panels following the sun position

Fixed Panels (Option B)

- 4.3.9 Fixed south facing solar panels are the most common approach for ground mounted solar PV facilities in the UK to date and involve installing solar panels to fixed tables, arranged in rows facing south.



Insert 4-4 Typical Fixed Panels (with a Conversion Unit)

Sub-distribution Switch Rooms

- 4.3.10 Sub-distribution Switch Rooms (refer to Insert 4-5) would be located throughout the Solar Arrays to collect the generated power and manage its delivery to the on-site substations. The Sub-distribution Switch Rooms would be similar in appearance to the Conversion Units.



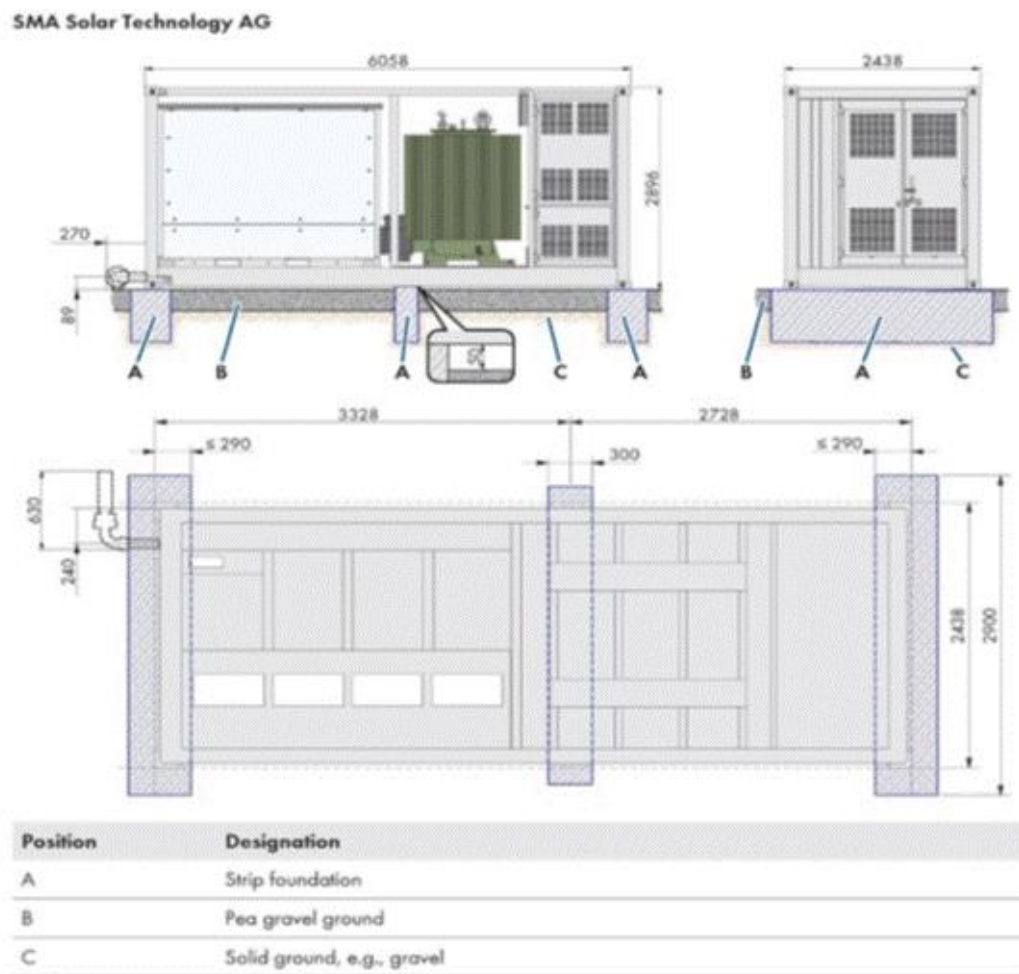
Insert 4-5 Sub-distribution Switch Room

Conversion Units

- 4.3.11 Conversion Units contain the inverters, transformers, switchgear and associated equipment to convert the Direct Current (DC) electricity produced by the arrays into AC electricity required for export to the National Grid. These would either be standalone equipment (Disaggregated Conversion Unit, refer to Insert 4-6) or they would be housed together within a container (Integrated Conversion Unit, refer to Insert 4-7).



Insert 4-6 Typical Disaggregated Conversion Unit



Insert 4-7 Typical Integrated Conversion Unit

Storage Containers

- 4.3.12 Storage Containers will be located throughout the Sites. Storage Containers will house maintenance equipment and be similar in appearance to the Integrated Conversion Unit.

Substations

400kV Substation

- 4.3.13 There will be a 400kV Substation, likely to be located on Site 1(c), that will receive the electricity from the Solar Arrays and other Substations. The 400kV Substation will comprise electrical infrastructure such as the transformers, switchgear and metering equipment required to facilitate the export of electricity from the Scheme to the National Grid. The 400kV Substation is also expected to include vehicle parking, ancillary buildings which will include office space and welfare facilities as well as operational monitoring and maintenance equipment.



Insert 4-8 Typical (large 400kV) power transformer

132kV substations

- 4.3.14 It is expected that several 132kV substations will be located across the Sites, which will receive the electricity from the Solar Arrays, step up the voltage and feed electricity to the 400kV Substation. The 132kV Substations will comprise electrical infrastructure such as the transformers and switchgear, vehicle parking, ancillary buildings which will include office space and welfare facilities as well as operational monitoring and maintenance equipment.



Insert 4-9 Typical 132kV substation compound

BESS

- 4.3.15 The Scheme will include a BESS. This is designed to provide peak generation and grid balancing services to the electricity grid. It will allow access to electricity generated from the solar PV panels to be stored in the batteries and exported to the grid when required. Excess energy from the grid can also be imported to the batteries. The energy storage facility will therefore provide flexibility and enhance grid reliability.



Insert 4-10 Typical BESS

- 4.3.16 The batteries would be housed within BESS Enclosures. These would be mounted on concrete foundations, although other types of foundations such as compacted gravel, metal pile, or ground screw pile may be used depending on ground conditions. The precise size and number of individual BESS Enclosures will depend upon the level of power capacity and duration of energy storage which will be refined through the design process. The BESS Enclosures are typically externally finished in keeping with the prevailing surrounding environment, often utilising a green or grey paint.
- 4.3.17 The BESS will require heating, ventilation and cooling systems to ensure the efficiency of the technology. These features are integrated into the units within which they are housed.
- 4.3.18 The battery system will be connected to inverters, transformers and switchgear to control the charge of the batteries from the solar PV electrical output, or the charge/discharge of the batteries when drawing energy from or providing energy to the National Grid.
- 4.3.19 The BESS will be constructed in accordance with the appropriate fire safety standards. and include other components comprising water storage and associated fire suppression systems, Access Tracks (including emergency access) and areas of hardstanding compacted granular material.
- 4.3.20 The BESS compound would be surrounded by 3m high palisade fencing, with integrated gates for access.

Fencing and Security

- 4.3.21 During operation, perimeter fencing will be in place. The location of the fencing will be identified as the design develops so that it can be assessed within the ES and finalised as part of the detailed design of the Scheme post-consent. The design principles of the fencing within the Sites will be deer wire mesh and wooden post fencing with a maximum height of 2.5m as illustrated in Insert 4-11.



Insert 4-11 Deer wire mesh and wooden post fencing

- 4.3.22 There will be palisade fencing around the Substations and BESS compound which will have a maximum height of 3m. Fencing during the construction phase will also be required, the details of which will be confirmed as part of the detailed design post-consent.
- 4.3.23 Pole mounted CCTV systems will be used around the perimeter of the operational elements of the Sites. It is anticipated that these will be galvanised steel or painted green poles with a maximum height of 3m.

Lighting

- 4.3.24 Lighting is not required within the Solar Arrays for the operational phase. Motion sensing security lighting will be provided within Substations and within the BESS to be used only for maintenance and security purposes.
- 4.3.25 Temporary site lighting during construction will be required to enable safe working during construction during hours of darkness and will be designed as far as reasonably practicable to minimise potential for light spillage outside the Sites and CRC, particularly towards houses, traffic and ecological habitats. Standard good practice measures would be employed to minimise light spill, including glare during construction.
- 4.3.26 All lighting required during construction and operation would be developed in accordance with a lighting strategy secured by the outline oCEMP and oOEMP and submitted with the DCO.

Mitigation and Enhancement Areas

- 4.3.27 Areas within the Site that will not be developed with infrastructure will be used to provide appropriate mitigation and enhancement measures as required to lessen the environmental impact of the Scheme. The level and type of measures required will be subject to further environmental assessment and design evolution. Measures that are suited to large scale solar schemes and could be implemented throughout the Site include:
- Additional planting (hedgerows, meadows and trees);
 - Creation of permissive paths; and
 - Placement of beehives, bird and bat boxes.

On Site Cables

- 4.3.28 Low voltage cabling between PV Panels, Conversion Units and Sub-distribution Switch Rooms will typically be located above ground level, fixed to the Mounting Structure, and then underground between Mounting Structures, Conversion Units and Sub-distribution Switch Rooms. High Voltage cables (33kV and/or 132kV) are required between the Sub-distribution Switch Rooms, BESS and the Substations.
- 4.3.29 The dimensions of trenching will vary subject to underground cabling and the associated number of ducts they contain and will be dependent on the method of installation and ground conditions. There may be a requirement for horizontal directional drilling (HDD) within the Site, for example to cross beneath existing buried utilities.
- 4.3.30 Communication cables will be required throughout the Solar Arrays to allow for monitoring during operation, such as the collection of data on solar irradiance from the PV panels. The communication cables would typically be installed within the same trench and alongside the electrical cables.

Grid Connection Cables

- 4.3.31 Within the CRC between each of the Sites, High Voltage cables (33kV and/or 132kV) are required to connect the Sub-distribution Switch Rooms and Substations, so that electricity generated by the Scheme can be transferred to the 400kV Substation.
- 4.3.32 All electricity generated by the Scheme and/or stored by the BESS will be exported from or imported to the 400kV Substation to/from the National Grid at Feckenham via 400kV cables buried underground.

- 4.3.33 The voltage of the cables and the number of circuits will affect the width and number of the cable trenches required. A typical cable trench width is 1.2 m wide, however the maximum trench width where a large number of circuits are required would be 7 m. Additionally, in some circumstances multiple adjacent trenches may be required. The width and spacing of the cable trenches will vary depending on environmental constraints, engineering requirements or if crossing third party apparatus (e.g. railway lines).
- 4.3.34 In addition to the trenches, land will be required within the CRC for access and soil and cable 'lay down'. Temporary construction compounds along the route will also be required. The typical working area for the CR installation is anticipated to be 25m to 35m wide, but a wider area may be required in some locations such as utility or road and rail crossings. Following installation of the cable, the construction working area would be reinstated to its existing use.
- 4.3.35 The final route and extent of the CRC will be refined through further environmental assessments, landowner negotiations and consultation and engagement input from other stakeholders, including host authorities.

Site Accesses and Access Tracks

- 4.3.36 Wherever practicable, existing field accesses will be utilised for access to the Sites. The proposed points of access from the highway will be designed to accommodate an articulated Heavy Goods Vehicle (HGV). The Site Accesses will incorporate a security gate, which is set back from the highway to allow sufficient room for an articulated HGV to leave the highway before entering the Site. Vegetation management to the existing hedgerows may be required to provide adequate visibility splays.
- 4.3.37 The transformers utilised in the Onsite Substations will be classified as Abnormal Indivisible Loads (AIL). An additional assessment will be undertaken by an AIL specialist to identify suitable routes and access points. The routing and access points used for the AIL deliveries will be determined through the design process and in consultation with the appropriate statutory consultees.
- 4.3.38 It is anticipated that Access Tracks within the Sites will follow the alignment of the existing agricultural tracks where practicable. The internal Access Tracks will likely be constructed of compacted stone with excavation kept to a minimum. Internal Access Tracks servicing the Onsite Substations will be constructed of asphalt to support AIL deliveries of transformers. Where drainage is required a ditch or a swale may be located downhill of the internal access track to control any potential for surface water run-off.

Works to achieve visibility splays on the public highway may also be required.

Landscape and Ecological Mitigation and Enhancement Areas

- 4.3.39 Areas within the Sites that will not be developed with infrastructure will be used to provide appropriate mitigation as required to lessen the environmental impact of the Scheme, along with enhancement measures. The level and type of measures required will be subject to further environmental assessment and design evolution. Measures that are typical for large scale solar schemes and could be implemented throughout the Site include strengthening of existing vegetation, provision of mitigation planting and creation of permissive paths.

4.4 Construction

Construction Overview and Programme

- 4.4.1 The Construction Phase is anticipated to take place over a period of approximately 24 months. The final programme will be dependent on the detailed layout design and potential environmental constraints on the timing of construction activities and will be detailed in the ES. However, the Scheme is currently anticipated to energise in July 2031, and it is therefore anticipated that the Construction Phase would commence by July 2029.

Construction Activities

- 4.4.2 The Construction Phase is expected to comprise the activities set out below, for both the main sites and CR.
- 4.4.3 Site preparation:
- Highway Works where required to upgrade, modify or improve existing highways;
 - Establishment of Site Accesses;
 - Delivery of construction materials, plant and equipment;
 - The establishment of perimeter fencing;
 - The establishment of temporary construction compound(s);
 - The upgrade of existing tracks and construction of new Access Tracks;
 - The upgrade or construction of crossing points (bridges/culverts) over drainage ditches and below ground utility infrastructure (if needed and appropriate);
 - Marking out location of Scheme component locations; and

- Advanced habitat creation and landscaping (if appropriate).

4.4.4 Construction:

- Erection of Mounting Structures;
- Mounting of PV Panels;
- Installation of Onsite Cables;
- Installation of Conversion Units;
- Installation of Sub-distribution Switch Rooms;
- Construction of Onsite Substations;
- Construction of the BESS;
- Construction of onsite electrical infrastructure to facilitate the export of generated electricity;
- Construction of Grid Connection Cables within the CRC;
- Construction of infrastructure within the existing National Grid Substation at the PoC, where necessary;
- Site reinstatement (including topsoil reinstatement) and habitat creation; and
- Testing and commissioning.

Temporary Construction Compounds

4.4.5 Temporary Construction Compounds will be required for the Sites and CRC. The temporary construction compounds will comprise:

- Portacabins for construction operatives with a typical maximum height of 3m;
- Perimeter security fencing with a typical maximum height of 3m;
- Parking area for construction and workers vehicles;
- Secure compound for storage;
- Temporary hardstanding;
- Wheel washing facilities;
- Temporary gated compound;
- Storage bins for recyclables and other waste; and
- Lighting.

Construction Traffic

- 4.4.6 There will be AIL vehicle, Heavy Goods Vehicle (HGV) and Light Goods Vehicle (LGV) movements associated with deliveries and construction worker arrivals and departures. Typical construction vehicles will include excavators, ramming machines, cable layers, low loaders, crane and waste vehicles, trenchers, telehandlers, forklift trucks and tractors/trailers. HGV and LGV movements will be assessed in the ES, and an AIL Report will be submitted alongside the DCO application to address AIL movements, typically associated with transformer and cable drum deliveries.

Construction Hours of Work

- 4.4.7 Construction activities are likely to be carried out Monday to Friday 07:00-18:00 and between 08:00 and 13:30 on Saturdays. However, some activities may be required outside of these times (such as the delivery of abnormal loads, concrete pours for foundations, night-time working for cable construction works in public highways or horizontal directional drilling activities). Where possible, 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 Management

- 4.4.8 An oCEMP will accompany the DCO application and describe the framework of mitigation measures identified in the ES to be followed and to be carried forward to a detailed CEMP implemented during the Scheme construction.
- 4.4.9 An oCTMP will accompany the DCO application and describe construction logistics and construction worker travel, including information to guide the delivery of material, plant, equipment, and staff during the Construction Phase. This will provide a framework of mitigation measures to be carried forward to a detailed CTMP implemented during the Scheme construction.
- 4.4.10 These management plans will be secured via requirements of the DCO.

Site Reinstatement and Habitat Creation

- 4.4.11 Following construction, a programme of Site reinstatement (including topsoil reinstatement) and habitat creation (where not appropriate as part of the site preparation activities) would commence. An oLEMP will be submitted as part of the DCO application and set out the principles for how the land would be managed throughout the operational and maintenance phase, following the completion of construction. The oLEMP will specify measures to mitigate significant effects of the Scheme and enhancement measures that support BNG. This will provide a framework of measures to be carried forward to a detailed LEMP implemented as part of the Scheme construction.

4.5 Operation and maintenance

General Operational Maintenance

- 4.5.1 The Operational Phase of the Scheme is proposed to be up to 60 years. During the Operational Phase of the Scheme, onsite activities would include routine servicing, maintenance activities, and the replacement of equipment such as PV Panels and BESS when required, as well as management of vegetation.
- 4.5.2 At this stage of the Scheme, it is anticipated that personnel will visit the Site from time to time to check the apparatus. No on-site staff will be required to operate the Scheme on a day-to-day basis. Movement within the Site will be by way of quad bike or small, farm utility vehicle. At times during operation, it will be required for additional staff to attend when necessary for replacement of solar and BESS infrastructure. The ES will confirm the likely operational traffic flows.

Operational Replacement

- 4.5.3 The components of the Scheme are anticipated to have the following approximate lifespans:
- PV Panels – 40 years; and
 - Batteries – 15 to 20 years.

- 4.5.4 It is therefore estimated that the PV Panels could require replacement once, and the batteries up to four times, during the operation of the Scheme. The effects of maintenance and replacement activities are anticipated to be lesser than the Construction Phase due to the mounting frames, cabling, substation and other infrastructure already being in situ and not needing replacement. These activities would be controlled and managed through appropriate management plans and by the requirements of the DCO.
- 4.5.5 HGV movements will be required to replace onsite equipment. The ES will include further details of the maintenance and replacement activities, and appropriate controls will be developed as part of the EIA process.

Operational Management

- 4.5.6 The land underneath and around the Solar Panel Mounting Structures would be sown wildflower grassland (or equivalent planting scheme identified through the EIA process). The Applicant will explore how this vegetation is managed through during the Operational Phase of the Scheme. For example, a combination of sheep grazing and hay/silage production may be use in order to manage vegetation. For the purposes of EIA Scoping, it has been assumed that that vegetation will be managed with machinery.
- 4.5.7 An oOEMP will accompany the DCO application and describe the framework of mitigation measures identified in the ES to be followed and to be carried forward to a detailed OEMP implemented during the Scheme operation. This will be secured via a requirement of the DCO.
- 4.5.8 The management of the landscape and ecological features will be undertaken in accordance with the detailed LEMP.

4.6 Decommissioning and reinstatement

- 4.6.1 Decommissioning is anticipated to take approximately 12 to 24 months.
- 4.6.2 During the Decommissioning Phase, all the solar infrastructure including PV Panels, Mounting Structures, above ground cabling, Conversion Units, Sub-distribution Switch Rooms, fencing, BESS and Onsite Substations would be removed and recycled or disposed of in accordance with good practice following the waste hierarchy, with materials being reused or recycled whenever possible. All waste will be disposed of in accordance with the legislation at the time of decommissioning.

- 4.6.3 The underground ducting and joint bays within the CRC will be decommissioned in accordance with the latest regulations and good practice at that time but are anticipated to be left in-situ to minimise adverse environmental effects. It may be possible to remove the cable itself by extracting it at the joint bays from within the ducting, so that the cable can be recycled.
- 4.6.4 Following the removal of the Scheme components, the land within the Scheme will be returned to its original use as far as possible as part of the decommissioning of the Scheme.
- 4.6.5 An outline oDEMP will accompany the DCO application and describe the framework of mitigation measures identified in the ES to be followed and to be carried forward to a detailed DEMP implemented during the Scheme decommissioning. This will be secured via a requirement of the DCO.

5 Topics to be Scoped Out

5.1 Introduction

- 5.1.1 This chapter presents the matters to be 'Scoped Out' of the ES. The topics that have been assessed as not likely to result in significant effects and can be scoped out of the ES are:
- Waste and Materials;
 - Major Accidents and Disasters;
 - Socio-Economics;
 - Air Quality;
 - Climate Vulnerability;
 - Water Environment; and
 - EMF.
- 5.1.2 The recommendations relating to the topics to be scoped out of the ES have been informed by initial on-site surveys, desk-based assessment, and professional judgement of the topic specialists.
- 5.1.3 The PINS guidance relating to NSIPs: Technical Advice Page for Scoping Solar Development³² has been considered in this Chapter. A summary of the reasoning behind scoping out topics is presented in each section of this chapter and summarised in Chapter 16 Conclusions of this Scoping Report.
- 5.1.4 Given the Site's rural location and lack of proximity to regional or national borders, the Scheme is not anticipated to result in transboundary effects when considering the PINS Advice 'NSIPs: Advice on Transboundary Impacts and Process'³⁵. For this reason, an assessment of these effects is proposed to be scoped out of the ES.

³⁵ Planning Inspectorate (2025) Nationally Significant Infrastructure Projects: Advice on Transboundary Impacts and Process. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-transboundary-impacts-and-process>

5.2 Waste and Materials

Overview

- 5.2.1 This section of the Scoping Report assesses whether the Materials and Waste impacts of the Scheme are likely to have significant adverse environmental effects, as defined by the Institute for Sustainability and Environmental Professionals (ISEP – formerly the Institute of Environmental Management and Assessment (IEMA) and referred to as such throughout this report) Guide to Materials and Waste in EIA³⁶ herein referred to as the ISEP Guidance.
- 5.2.2 A Materials and Waste assessment has been scoped out of the EIA for the Scheme as it is not expected to have a significant impact on material availability or waste landfill capacity in the region, for the reasons outlined below.
- 5.2.3 Any waste generated throughout all phases of the Scheme will be managed in line with the Waste Hierarchy as shown in Insert 5-1.

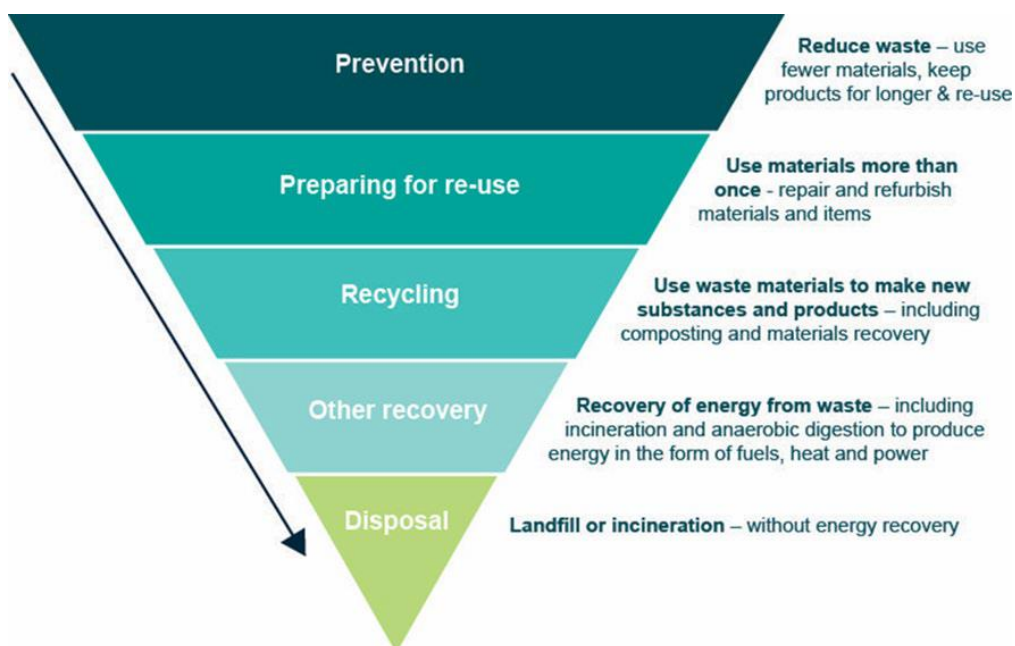


Figure 5-1 The Waste Hierarchy³⁷

³⁶ ISEP (2025) Materials and Waste in Environmental Impact Assessment. Available at: <https://www.ISEP.net/media/0t5fwyhj/ISEP-materials-and-waste-in-eia-march-2020.pdf>

³⁷ Defra (June 2011) Guidance on applying the Waste Hierarchy. Available at: <https://assets.publishing.service.gov.uk/media/5a795abde5274a2acd18c223/pb13530-waste-hierarchy-guidance.pdf>

Overview of Legislation, Policy and Guidance

- 5.2.4 This section presents the legislation, policy and guidance relevant to the Materials and Waste assessment.
- 5.2.5 A list of the relevant national and local legislation, policies and guidance is provided below.

Relevant National Legislation, Policy and Guidance:

- Legislation:
 - The Environmental Protection Act 1990 (c.43)³⁸
 - Clean Neighbourhoods and Environment Act 2005 (c. 16)³⁹
 - Environment Act 2021⁹
 - The Hazardous Waste (England and Wales) Regulations 2005 (SI 2005/894)⁴⁰
 - Waste Electrical and Electronic Equipment (WEEE) Regulations 2013 (SI 2013/3113)⁴¹
 - The Waste Batteries and Accumulators Regulations 2009 (SI 2009/890)⁴²
 - The Environmental Permitting (England and Wales) Regulations 2016 (SI 2016/1154)⁴³
 - Waste Framework Directive 2008 – Article 2 (European Commission, 2008)⁴⁴ as transposed into English and Welsh law by the Waste (England and Wales) Regulations 2011 (SI 2011/988)⁴⁵
- Policy:
 - NPS for Energy (EN-1)¹³
 - PINS NSIPs: Technical Advice Page for Scoping Solar Development³²

³⁸ Environmental Protection Act 1990. Available at: <https://www.legislation.gov.uk/ukpga/1990/43/contents>

³⁹ Clean Neighbourhoods and Environment Act 2005. Available at: <https://www.legislation.gov.uk/ukpga/2005/16/contents>

⁴⁰ The Hazardous Waste (England and Wales) Regulations 2005. Available at: <https://www.legislation.gov.uk/uksi/2005/894/contents>

⁴¹ The Waste Electrical and Electronic Equipment Regulations 2013. Available at: <https://www.legislation.gov.uk/uksi/2013/3113/contents>

⁴² The Waste Batteries and Accumulators Regulations 2009. Available at: <https://www.legislation.gov.uk/uksi/2009/890/contents>

⁴³ The Environmental Permitting (England and Wales) Regulations 2016. Available at: <https://www.legislation.gov.uk/uksi/2016/1154/contents>

⁴⁴ Directive 2008/98/EC of the European Parliament and of the Council. Available at: <https://www.legislation.gov.uk/eudr/2008/98/article/2>

⁴⁵ The Waste (England and Wales) Regulations 2011. Available at: <https://www.legislation.gov.uk/uksi/2011/988/contents>

- NPPF, February 2025 (Ministry of Housing, Communities and Local Government, 2025)¹⁸
- Guidance:
 - Waste Management Plan for England 2021 (Department for Environment, Food & Rural Affairs, 2021)⁴⁶
 - Resources and Waste Strategy for England 2018 (Department for Environment, Food & Rural Affairs, 2018)⁴⁷

Relevant local policy:

- Warwickshire Minerals Local Plan 2018 – 2032 (adopted 22 July 2022)⁴⁸
- Warwickshire Waste Core Strategy 2013 – 2028 (adopted 9 July 2013)⁴⁹
- Warwickshire Minerals Local Plan policies map⁵⁰
- Worcestershire Minerals Local Plan 2018 – 2036 (adopted 14 July 2022)⁵¹
- Worcestershire Waste Core Strategy 2012 – 2027 (adopted 15 November 2012)⁵²
- Worcestershire Minerals Local Plan Interactive Minerals Mapping Tool⁵³

⁴⁶ Department for Environment Food and Rural Affairs (2021) Waste Management Plan for England. Available at: <https://assets.publishing.service.gov.uk/media/60103f71d3bf7f05bc42d294/waste-management-plan-for-england-2021.pdf>

⁴⁷ Department for Environment Food and Rural Affairs and Environment Agency (2018) Resources and Waste Strategy for England. Available at: <https://www.gov.uk/government/publications/resources-and-waste-strategy-for-england>

⁴⁸ Warwickshire County Council (2022) Minerals Local Plan. Available at: <https://www.warwickshire.gov.uk/mineral-waste-plans/minerals-development-framework>

⁴⁹ Warwickshire County Council (2013) Warwickshire Waste Core Strategy Adopted Local Plan 2013-2028. Available at: <https://api.warwickshire.gov.uk/documents/WCCC-680-279>

⁵⁰ Warwickshire County Council (2026) Minerals Local Plan Policies Map. Available at: <https://www.warwickshire.gov.uk/minerals-local-plan-1>

⁵¹ Worcestershire County Council (2018) Minerals Local Plan 2018-2036. Available at: <https://www.worcestershire.gov.uk/council-services/planning-and-developments/planning-policy-and-strategy/minerals-planning-policy/adopted-minerals-local-plan>

⁵² Worcestershire County Council (2012) Waste Core Strategy for Worcestershire. Available at: <https://www.worcestershire.gov.uk/council-services/planning-and-developments/planning-policy-and-strategy/waste-core-strategy>

⁵³ Worcestershire County Council (2026) Worcestershire Minerals Local Plan Map. Available at: https://gis.worcestershire.gov.uk/Website/MineralsLocalPlan/?_gl=1*10ll7go*_ga*MTY2OTcwODcyOS4xNzlwNDMwNzI4*_ga_RSBCTX039R*MTcyMDUxODA3MC4zLjEuMTcyMDUxODgzMi4wLjAuMA..

Baseline

- 5.2.6 The baseline environment has been established through a desk-based review of regional and national data, based on ISEP Guidance, from the following publicly available sources (most up to date at time of writing):
- Environment Agency Remaining Landfill Capacity, 2023 – 2024⁵⁴;
 - Mineral Products Association (MPA) Profile of the UK Minerals Products Industry, 2023 Worksheet⁵⁵;
 - West Midlands Aggregate Working Party (WMAWP), Annual Monitoring Report, 2023⁵⁶;
 - World Steel in Figures, 2025⁵⁷
 - Warwickshire Minerals Local Plan policies map⁵⁰;
 - Warwickshire Minerals Local Plan 2018 – 2032⁴⁸;
 - Worcestershire Minerals Local Plan 2018 – 2036⁵¹; and
 - Worcestershire Minerals Local Plan Interactive Minerals Mapping Tool⁵³.

Study Area

- 5.2.7 The study areas that are applicable to the Scheme (as defined in the ISEP Guidance) are:
- The development study area – this comprises the Scheme footprint and any areas required for temporary access, site compounds, working platforms and other enabling activities (i.e. the Site); and
 - The expansive study area – this extends to the availability of construction materials and remaining landfill void with defined region(s).
- 5.2.8 Based on professional judgement and the availability of data, the expansive study area has been chosen as:
- The West Midlands region and, where necessary or especially where regional data areas are unavailable, the UK for materials;

⁵⁴ Environment Agency (2025) Remaining Landfill Capacity. Available at: <https://ckan.publishing.service.gov.uk/dataset/remaining-landfill-capacity1>

⁵⁵ Mineral Products (2023) Profile of the UK Mineral Products Industry. Available at: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fmineralproducts.org%2FMPA%2Fmedia%2Froot%2FPublications%2F2023%2FProfile_of_the_UK_Mineral_Products_Industry_2023_Worksheet.xlsx&wdOrigin=BROWSELINK

⁵⁶ West Midlands Aggregates Working Party (2023) Annual Report 2023. Available at: https://assets.publishing.service.gov.uk/media/65c107e2704282000d752251/2022_-_WMAWP_Report.pdf

⁵⁷ World Steel Association (2025) World Steel in Figures 2025. Available at: <https://worldsteel.org/data/world-steel-in-figures/world-steel-in-figures-2025/#major-steel-producing-countries2023-and-2024>

- The West Midlands region for hazardous waste; and
- Worcestershire and Warwickshire for non-hazardous and inert waste as the Scheme boundary sits within both counties.

5.2.9 Receptors, with regards to materials and waste, are defined as:

- The regional West Midlands and national materials market;
- Local and regional landfill void capacity; and
- Local Mineral Safeguarding Areas and peat resources.

Materials

5.2.10 Materials are defined in ISEP Guidance as “substances used in each lifecycle stage of a development, with a particular focus on the construction, operation and maintenance, and decommissioning or ‘end of life’ (deconstruction, demounting, demolition and disposal) phases”. Materials are physical resources that are used across the lifecycle of a development such as concrete, aggregate, asphalt, bricks, mortar, glass and timber.

5.2.11 The regional West Midlands and national breakdown of annual sales of materials are summarised in Table 5-1. Data for aggregates, crushed rock, and sand and gravel for the West Midlands region are taken from the WMAWP Annual Report, 2023⁵⁶ (the most recent year data is available for). All other data is taken from the MPA Profile of the UK Mineral Products Industry 2023 workbook (the most recent year data is available for). Accurate data for regional recycled and secondary aggregates were not reported within the WMAWP Annual Report, therefore only national data is shown for this material. Regional data is not reported for steel, therefore annual sales in the UK are taken from World Steel in Figures 2025.

5.2.12 The materials listed in Table 5-1 represent the primary construction materials identified for the Scheme, based on professional experience.

5.2.13 Given that construction activity varies from year to year in scale, type and volume, associated material demand also fluctuates. The data presented should therefore be regarded as representative.

Table 5-1 Materials Baseline

Materials	Regional sales baseline – West Midlands (million tonnes per annum)	National sales baseline (million tonnes per annum)
Primary Aggregate - Crushed rock	4.97	116.2
Primary Aggregate - Sand and gravel	7.99	52.1
Recycled and secondary aggregate	Not reported/provided	74.0
Asphalt	1.7	21.8
Ready-mixed concrete*	4.3	35.4
Steel	N/A	4
*cubic metres (m ³) have been converted to tonnes using density of 2.4 tonnes/m ³ ((MPA), Profile of the UK Mineral Products Industry)		

Waste

- 5.2.14 In line with Waste Framework Directive⁵⁸ and as set out in the ISEP Guidance, waste is defined as “any substance or object which the holder discards or intends or is required to discard”.
- 5.2.15 The remaining landfill capacity data is calculated by the Environment Agency. Table 5-2 below summarises inert and non-hazardous landfill capacity for Worcestershire and Warwickshire (for the most recent years for which data is available) to establish the baseline as the Site boundary sits within both counties.

Table 5-2 Remaining Inert and Non-Hazardous Waste Landfill Void Capacity (m³)

Landfill Type	2022	2023	2024
Inert and non-hazardous landfill void capacity (Warwickshire / Worcestershire)	16,027,848	14,547,949 ⁵⁹	16,016,646

⁵⁸ European Commission (2026) Waste Framework Directive. Available at: https://environment.ec.europa.eu/topics/waste-and-recycling/waste-framework-directive_en

⁵⁹ The drop in 2023 is due to the lack of reporting of one landfill for 2023 and is assumed to be anomalous.

- 5.2.16 For hazardous waste landfill capacity, the entirety of England has been used to establish the baseline. This indicates that as of 2024 there is capacity for 9,167,450 m³ across multiple sites in England.

Mineral Safeguarding Areas (MSA) and Peat Resources

- 5.2.17 Non-mineral development occurring within areas allocated for future mineral extraction have the potential to interrupt the supply of minerals and sterilise underlying mineral deposits by effectively preventing access for future exploitation.
- 5.2.18 As the Site sits within both the counties of Worcestershire and Warwickshire the MSA for both counties have been assessed to establish the baseline.
- 5.2.19 The key safeguarded mineral resources in Worcestershire are sand and gravel, brick clay, silica sand and salt. The key safeguarded mineral resources in Warwickshire are building stone, sand and gravel, crushed rock, clay and brick clay.
- 5.2.20 Both Worcestershire and Warwickshire Minerals Local Plans include safeguarding maps identifying safeguarded mineral deposits within the counties. As shown in Volume II, Figure 5.2.1, a section of CR1 sits within an MSA for sand and gravel in Worcestershire and sections of CR2 and CR3 and land parcels for sub-Sites 1(c) and 1(e) and sub-Sites 2(a), 2(b), 2(c), 2(d), 2(e) of the Scheme sit within an MSA for sand and gravel in Warwickshire.

Likely Significant Effects and Proposed Mitigation

Construction

Materials

- 5.2.21 During construction of the Scheme the likely construction materials to be used are:
- Steel for structures on which to mount the solar panels, mounted on piles or anchored using concrete feet;
 - Aggregates, concrete and steel to be used for the construction of temporary compounds, access tracks and bases for substations and BESS; and
 - Smaller quantities of materials including plastic, wood and glass, amongst others.

5.2.22 The potential effect of materials use is the permanent removal of these materials from the market. Although the exact types and quantities of materials that will be used during construction for the Scheme are not known at this stage of design development, other Solar NSIPs promoted by IGP of a similar scale have not exceeded these thresholds. Following the ISEP methodology and significance criteria, the predicted quantities of material use are not likely to exceed the thresholds, as shown in Table 5-3 (more than 10% of the regional baseline or national baseline where figures for the regional baseline are unavailable), for significance when compared to the baseline, as shown in Table 5-1. This indicates that no significant environmental effects would be expected for materials in construction.

Table 5-3 Threshold for Significant Environmental Effects for Materials

Materials	Threshold for Significant Impact (tonnes)
Regional Crushed rock	497,000
Regional Sand and gravel	799,000
National Recycled and secondary aggregate	7,400,000
Regional Asphalt	170,000
Regional Ready-mixed concrete*	430,000
National Steel	400,000

Waste

5.2.23 During construction it is anticipated that waste is likely to be generated from the following sources:

- Delivery of materials and components generating waste including but not limited to pallets and plastic wrapping and employee activity on-site, generating waste including personal protective equipment (PPE), municipal and food waste. Where practicable these will be separated into recyclable streams and the management of this waste will be in accordance with the waste hierarchy and prioritise non-landfill methods such as recycling or processing via Energy from Waste facilities and therefore minimal waste would require disposal to landfill.
- Excavation works on agricultural land for the cable laying, and to construct temporary compounds, access tracks and level ground for substations and the BESS, are expected to be the primary activities generating excavated materials/arising. Reuse of the excavated

material on-site will be the preferred option, where it is legal to do so, managed during construction in accordance with appropriate legislation and guidance, including but not limited to the waste hierarchy. A Soil Management Plan (SMP) will be prepared and implemented to ensure the appropriate and sustainable reuse of suitable excavated materials/arising during construction. If required, excavated soils will be removed from site by a licenced waste contractor following Waste Duty of Care protocols and any haulier will be required to hold a waste carrier's licence. The excavated soil that cannot be reused on-site could be used under a deposit for recovery environmental permit or sent to a landfill with an appropriate environmental permit.

5.2.24 A small portion of the waste generated on-site during construction could be sent to landfill, with most waste generated by construction of the Scheme being diverted through reuse, or other methods as advised by the waste hierarchy.

5.2.25 Although the exact types and quantities of waste that will be generated during construction for the Scheme are not known at this stage of design development, other solar NSIPs promoted by IGP of a similar scale have not identified significant effects arising from waste generation. Additionally, applying the ISEP methodology and significance guidance indicates that, following adherence to the waste hierarchy, the predicted volume of waste requiring landfill disposal is not expected to exceed the thresholds (10% of the baseline shown in Table 5-2) for significance shown in Table 5-4 . This indicates that no significant environmental effects would be expected for waste in construction.

Table 5-4 Threshold for Significant Impact for Waste requiring landfill disposal

Landfill Type	Threshold for Significant Impact (m ³)
Inert and non-hazardous landfill void capacity (Warwickshire/Worcestershire)	1,601,664

5.2.26 Waste management will be considered throughout the design and construction of the Scheme to ensure compliance with legislation and to minimise impact to the environment.

- 5.2.27 Potential sources of contamination that may be encountered during excavation that could result in hazardous waste arisings have been detailed in Chapter 8: Ground Conditions and Contamination. It should be noted that an area of land excavated at Ragley Quarry, as shown in Figure 5.2.1, Volume II, has been infilled and restored under historic planning permissions. At this stage it is unknown what permissions were granted to undertake this infilling activity and therefore it is unknown what sources of potential contamination may be associated with these historical activities. Construction activities for the Scheme could potentially interact with this area of land and generate hazardous wastes. The presence of contamination will be investigated further via ground investigation to determine what ground conditions are present in this area of the Site. If necessary, a no dig solution may be pursued for any areas of the Site that may give rise to contamination and structures that require foundations will be sited away from these areas as far as practicable. Relevant mitigation measures will be included within the oCEMP which will be secured via the DCO.
- 5.2.28 The oCEMP and oWMP will guide efforts to minimise resource usage, reduce waste generation, and support landfill diversion. An oCEMP will be prepared in outline and submitted with and secured via the DCO. The WMP will be secured post-consent alongside the detailed CEMP.
- 5.2.29 All management of waste (including hazardous waste) will be in accordance with the relevant regulations and waste will be transported by licensed waste hauliers to waste management sites which hold the necessary regulatory authorisation and/or permits for those wastes consigned to them.
- 5.2.30 Therefore, it is proposed that waste generated during construction is scoped out as the levels of waste creation and measures included within the oCEMP and WMP (including through no dig solutions for any areas of the site that may give rise to contaminated wastes) will ensure that there would not be significant environmental effects.

Mineral Safeguarding Areas

- 5.2.31 The Mineral Safeguarding Areas presented on Volume II, Figure 5.2.2, show that the Scheme has the potential to affect future mineral extraction within both Worcestershire and Warwickshire and sterilise the identified sand and gravel deposits.

- 5.2.32 However, given the temporary nature of the Scheme (maximum 60 year operational life), any minerals beneath the Site will not be sterilised on a long-term basis and would be available for exploitation in the future. In addition to this, it is understood that sand and gravel has already been extracted from a significant portion of sub-Sites 2(a) and 2(d) under a historic mineral planning application at Ragley Quarry as shown in Volume II, Figure 5.2.1, therefore this area of mineral resource has already been exploited. Given the temporary nature of the Scheme (60 years) and the limited extent of mineral safeguarded area affected, it is concluded that there would not be a significant effect on mineral resources. The Mineral Code will be included in the draft DCO to avoid the sterilisation of minerals through compulsory acquisition.
- 5.2.33 Given the above considerations, it is proposed to scope minerals out of the ES.
- 5.2.34 As shown in Volume II, Figure 5.2.1, there are no areas of Blanket Bogs, Lowland Fens, or Lowland Raised Bog areas within the Site. Therefore, the Scheme will not impact Peat reserves.

Operation

Materials

- 5.2.35 During the operation of the Scheme, there will be limited activity of relevance to materials. For usual maintenance and replacement activities, solar mounting structures would be reused and all access tracks would remain in situ. As such, additional material inputs as part of the operational phase of the Scheme are expected to be minimal.

Waste

- 5.2.36 During the operation of the Scheme any waste components arising from battery and panel replacement would be recycled where possible and disposed of in line with manufacturer's guidance and the relevant regulatory requirements. It is not possible to identify exact wastes to be recycled at this stage of design, however typical examples of wastes to be generated from panel replacement may include: aluminium, glass, crystalline silicon solar cells and copper wiring (all inert waste). Between 75% and 85% of a solar panel is currently recyclable based on facilities and techniques available today. It is anticipated that this figure will be higher when replacement is required.

- 5.2.37 For batteries, the supplying manufacturer will have obligations under the Waste Batteries and Accumulators Regulations 2009 (as amended)⁶⁰ (or such equivalent regulations in force at the time of replacement) and will be contractually obliged to offer a recycling service. Batteries will be disposed of under the relevant regulations and best practice measures secured in the oBSMP.
- 5.2.38 Operational waste generation will also be governed by the oOEMP and WMP, secured by the DCO. Therefore, no significant impacts would be expected for materials and waste in operation.

Mineral Safeguarding

- 5.2.39 Any minerals beneath the Site will not be sterilised on a long-term basis during operation and would be available for exploitation in the future. In addition to this, sand and gravel has already been extracted from under sub-Sites 2(a) and 2(d). It is therefore expected that the impact on mineral resources during operation will be minimal.

Decommissioning

Materials

- 5.2.40 As detailed in Chapter 4 Scheme Description, all above ground infrastructure will be removed upon end of life and recycled or disposed of in accordance with the waste hierarchy and latest regulations and legislation at the time of decommissioning. The quantities of materials that will be dismantled and removed during decommissioning will be similar to those used in construction and therefore not likely to be significant.

Waste

- 5.2.41 Recycling procedures for the Scheme at the end of its lifetime (including the BESS) will be in line with relevant regulations and good practice industry guidelines prevailing at the time. Possibilities to reuse or recycle materials will be explored. It is not possible to identify exact wastes to be recycled at this stage of design, however, typical examples of waste to be generated may include: aluminium, glass, crystalline silicon solar cells, copper wiring, steel mounting structures and other electrical equipment. Where possible these will be separated into recyclable streams and the management of this waste will prioritise non-landfill methods such as recycling or recovery. As with operational replacement, between 75%

⁶⁰ The National Archives (2009) The Waste Batteries and Accumulators Regulations 2009, Available at: <https://www.legislation.gov.uk/uksi/2009/890/contents>

and 85% of a solar panel is currently recyclable and this is likely to be lower at the point of decommissioning. BESS and electrical infrastructure recycling will be governed by relevant regulations.

- 5.2.42 At present it is not possible to identify either the waste management routes or specific facilities that would be used in the Decommissioning phase. However, an oDEMP will be submitted with the application, that will include procedures and practices to be followed during decommissioning, which will be in line with the waste hierarchy and set out that best practices at the time of decommissioning will be followed.

Mineral Safeguarding

- 5.2.43 Following decommissioning, access to the minerals that would have been restricted during operation of the Scheme would be restored to previous conditions.

Summary

- 5.2.44 Table 5-5 provides a summary of the scoping for waste and resources.

Table 5-5 Summary of the Scoping Decision for Waste and Materials

Potential Effect	Scoping and Justification
Construction	
Permanent Removal of Materials from the Market	Scoped out - When following the ISEP methodology and significance criteria, the predicted quantities of material use are not likely to exceed the thresholds, for significance when compared to the baseline
Large quantities of waste being diverted to landfill	Scoped out - Applying the ISEP methodology and significance guidance indicates that, following adherence to the waste hierarchy, the predicted volume of waste requiring landfill disposal is not expected to exceed the thresholds for significance when compared to the baseline
Sterilization of Mineral Resources	Scoped out - Any minerals beneath the Site will not be sterilised on a long-term basis and would be available for exploitation in the future. In addition to this, it is understood that sand and gravel has already been extracted from a significant portion of sub-Site 2(d)
Operation	

Potential Effect	Scoping and Justification
Large quantities of waste being diverted to landfill	Scoped out - During the operation of the Scheme there is the requirement for periodic panel and/or battery replacement that will use materials and generate waste. These quantities are expected to be negligible (compared to the baseline).
Sterilization of Mineral Resources	Scoped out - any minerals beneath the Site will not be sterilised on a long-term basis during operation and would be available for exploitation in the future.
Decommissioning	
Generation of waste being diverted to landfill	Scoped out – similar effects to operation when periodic solar array and BESS replacement would occur.

- 5.2.45 The best practice measures and principles of the waste hierarchy will be embedded throughout the design and construction of the Scheme. This will enable high diversion from landfill rates during the construction phase of the Scheme.
- 5.2.46 An oCEMP, WMP, and oDEMP will be implemented to support efficient management of materials and waste during construction, operation and decommissioning of the Scheme to deliver best practice in waste management ensuring that reuse of excavated soil is optimised, any excess waste is removed from the Site and disposed of legally, ensure that use of materials is sustainable and efficient, and that the Scheme complies with relevant regulatory requirements.
- 5.2.47 Considering the likely effects and mitigation measures of the Scheme described above, it is anticipated that the material use and waste generated from the construction, operation and decommissioning of the Scheme would not significantly reduce regional or national material markets nor will it significantly reduce landfill capacity. Therefore, significant effects in EIA terms are not considered likely and it is proposed that materials and waste is scoped out of the ES, with an oCEMP, WMP and oDEMP to be submitted alongside the ES as part of the DCO application.

5.3 Major Accidents and Disasters

Overview

- 5.3.1 This Section of the EIA Scoping Report addresses the potential for the Scheme to result in significant effects as a result of Major Accidents and / or Disasters (MA&D).
- 5.3.2 The EIA Regulations² introduced the requirement for the consideration of MA&D into the EIA process in 2017. There is no definition of 'major accidents or disasters' provided in the EIA Regulations; however, the ISEP Major Accidents and Disasters in EIA: A Primer⁶¹ (referred to herein as the 'ISEP Primer') provides the following definitions:
- Disaster: 'May be a natural hazard (e.g. earthquake) or a man-made/external hazard (e.g. act of terrorism) with the potential to cause an event or situation that meets the definition of a major accident.'
 - Major Accident: 'Events that threaten immediate or delayed serious environmental effects to human health, welfare and/or the environment and require the use of resources beyond those of the client or its appointed representatives to manage. Whilst malicious intent is not accidental, the outcome (e.g. train derailment) may be the same and therefore many mitigation measures will apply to both deliberate and accidental events.'

Relevant Legislation, Policy and Guidance

- 5.3.3 This section presents the key legislation, policy and guidance specifically relevant to the assessment of MA&D.

Legislation

- 5.3.4 As noted above, the EIA Regulations require the consideration of MA&D as part of the EIA process. Specifically, Schedule 4, paragraph 5(d) states that ESs should include:

"...A description of the likely significant effects of the development on the environment resulting from, inter alia:

...

⁶¹ ISEP (2020). Major Accidents and Disasters in EIA: A Primer. Available at: <https://www.isepglobal.org/content/major-accidents-and-disasters-in-eia-an-iema-primer-october-2020/>

(d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);..."

5.3.5 Additionally, Schedule 4 paragraph 8 of the same regulations notes that ESs should also include:

"A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned."

5.3.6 There are a number of other regulatory regimes and consenting processes that relate to the protection of human health and / or the environment that are relevant to the prevention, control and mitigation of, and / or the assessment of, major accidents / hazards (including those resulting from disasters). Key examples of these are referred to herein, as appropriate (see Table 5-6).

National and Local Policy

5.3.7 There are no significant national or local policies relating specifically to the assessment of MA&D. However, NPS EN-1¹³ notes that "Applicants must consult the Health Security Agency (HAS) and Health & Safety Executive (HSE) at pre-application stage if the project is likely to need hazardous substances consent (HSC). HSCs are a part of the planning regime which contributes to public safety."

Guidance

5.3.8 The main source of guidance for the assessment of MA&D is the ISEP Primer⁶¹, which provides a proportionate method for considering MA&D through screening, scoping and impact assessment.

5.3.9 A further source of guidance is the PINS's NSIP Technical Advice Page for Scoping Solar Development³² (herein referred to as the 'NSIP Solar Guidance'). This non-statutory guidance provides examples of the types of evidence / assumptions to be provided in the EIA Scoping Report, as follows:

- 'explanation as to how potential major accident and disaster risks have informed the site selection and the Scheme description in the Scoping Report;
- a major accident and disaster 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;

- identification of any sensitive receptors in relation to the site including for example Control of Major Accident Hazards Regulations (COMAH) sites'.

5.3.10 The NSIP Solar Guidance also provides examples of the types of proposed mitigation to be summarised in the commitments register, including commitments relating to the provision of plans to manage risks; for example, a oCEMP, oBSMP and drainage strategy.

5.3.11 The National Fire Chiefs Council (NFCC) has produced a guidance document for grid scale BESS⁶². This guidance is intended to support local Fire and Rescue Services (FRSs) in providing consistent evidence-based contributions to the planning process for BESS development. The guidance is based on a range of supporting materials, including academic research, national and international standards, case studies, and industry guidance. It specifically relates to grid scale BESS in open air environments, using lithium-ion batteries.

5.3.12 Guidance in relation to identification of potential hazards and risks (in particular those arising as a result of MA&D) can be found in the ISEP Primer⁶¹, the National Risk Register (NRR) of Civil Emergencies 2025⁶³ and more locally in Community Risk Registers (CRRs). The relevant CRRs for the Scheme are:

- West Midlands Local Resilience Forum CRR⁶⁴ (for ReBC);
- West Mercia Local Resilience Forum CRR⁶⁵ (for WyDC and WoCC); and
- Warwickshire Local Resilience Forum CRR⁶⁶ (for SoADC and WaCC).

⁶² National Fire Chiefs Council (2025) Grid Scale Battery Energy Storage System planning – guidance for FRS. Available at: <https://nfcc.org.uk/our-services/building-safety/grid-scale-energy-storage-system-planning-guidance-for-fire-and-rescue-services/>

⁶³ Cabinet Office (2025) National Risk Register 2025. Available at: <https://www.gov.uk/government/publications/national-risk-register-2025>

⁶⁴ West Midlands Prepared (2024) Preparing the West Midlands for Emergencies – Community Risk Register. Available at: <https://www.westmidlandsprepared.gov.uk/downloads/file/1/community-risk-register>

⁶⁵ West Mercia Police (2026) Community Risk Register. Available at: <https://www.westmercia.police.uk/police-forces/west-mercia-police/areas/west-mercia/about-us/about-us/west-mercia-local-resilience-forum2/community-risk-register>

⁶⁶ Warwickshire County Council (2026) Warwickshire Resilience Forum. Available at: <https://www.warwickshire.gov.uk/community-safety/warwickshire-resilience-forum/3>

Baseline Data and Study Areas

- 5.3.13 The baseline data in relation to setting, receptors and the extents of the study areas that are described in the other environmental chapters of this report are deemed to be sufficient for use in the consideration of MA&D. This is based on professional judgement and guidance within the ISEP Primer that data collection for other environmental topics is generally considered sufficient to inform the scoping of MA&D. Of specific relevance to the assessment of MA&D, the 'Groundsure' reports^{67,68,69,70}, do not record any upper or lower tier COMAH installations within 500 m of the site boundary.

Likely Significant Effects and Proposed Mitigation

- 5.3.14 The potential for the Scheme to result in significant effects as a result of MA&D has been considered for the construction and operational phases of the Scheme. At this time, detailed information is not available for the decommissioning phase; however, decommissioning impacts are likely to be similar to those for construction and have been scoped accordingly. At the end of operational life, a decommissioning plan will be prepared and implemented.
- 5.3.15 To avoid unnecessary repetition and duplication, the assessment of MA&D signposts to other sections of the Scoping Report and / or to other documentation and regulatory regimes, as applicable. This includes the following:
- Glint and glare is addressed in Chapter 15;
 - The vulnerability of the Scheme to climate change (e.g. severe weather events), with the exception of flood risk, is considered in the Climate Vulnerability Section (5.6) of Chapter 5;
 - Flood risk is addressed in this Chapter (Section 5.7), and a standalone Flood Risk Assessment (FRA) will be undertaken as part of the DCO application;
 - Risks associated with geohazards (for example ground instability, unexploded ordinance, landfill gas permeability) are addressed in Chapter 7 Ground Conditions and Contamination; and

⁶⁷ Groundsure, Enviro+Geo Insight report, Arrow Valley North, Ref GS-6GF-UDD- XD8-DXU, Ref GS-EFU-BLN-8ZJ-ADP, January 2026.

⁶⁸ Groundsure, Enviro+Geo Insight report, Arrow Valley North 2, Ref GS-6UU-L2A-95I-UGP; Ref GS-LT8-1AF-VQW-l6Z, January 2026.

⁶⁹ Groundsure, Enviro+Geo Insight report, Arrow Valley South, Ref GS-YSY-78f-8VS-MDN, Ref GS-1DR-53L-3OV-3TX, January 2026

⁷⁰ Groundsure, Enviro+Geo Insight report, Arrow Valley South 2, Ref GS-86Q-3IH-ANA-N2D, Ref GS-6OW-C84-X2W-1XM.

- Risks associated with transport and access are considered in Chapter 10 Transport and Access and will be considered as part of a standalone Transport Assessment (TA), to be submitted as part of the DCO application.

5.3.16 In relation to the requirement to consider MA&D, the ISEP Primer⁶¹ states that:

'In general, major accidents and/or disasters should be considered as part of an assessment where the development has the potential to cause the loss of life, permanent injury and / or temporary or permanent destruction of an environmental receptor which cannot be restored through minor clean-up and restoration.'

5.3.17 Developments should be considered in terms of both:

- Their vulnerability to MA&D; as well as
- Their potential to cause, or exacerbate a MA&D.

5.3.18 The ISEP Primer offers a proportionate assessment methodology with a focus on low likelihood / high consequence events. Low impact events, such as minor spills, are not major accidents and are not to be considered. The ISEP Primer also recognises that:

- The update to the EIA Regulations should not result in duplication of effort and/or assessment, reinforcing the need for proportionality;
- The UK already has a structured framework of risk management legislation in place and as such a signposting approach, making efficient use of existing risk assessments, can be applied; and
- Primary and tertiary mitigation of a development's vulnerability to MA&D for infrastructure and other built environment developments is covered by a wide range of safety and non-safety related legislation, and that in most circumstances, this mitigation is usually sufficient to manage the vulnerabilities to MA&D without the need for secondary mitigation.

5.3.19 The ISEP Primer provides a useful screening tool / process flow diagram for scoping MA&D in or out of an EIA as illustrated below in Insert 5-2.

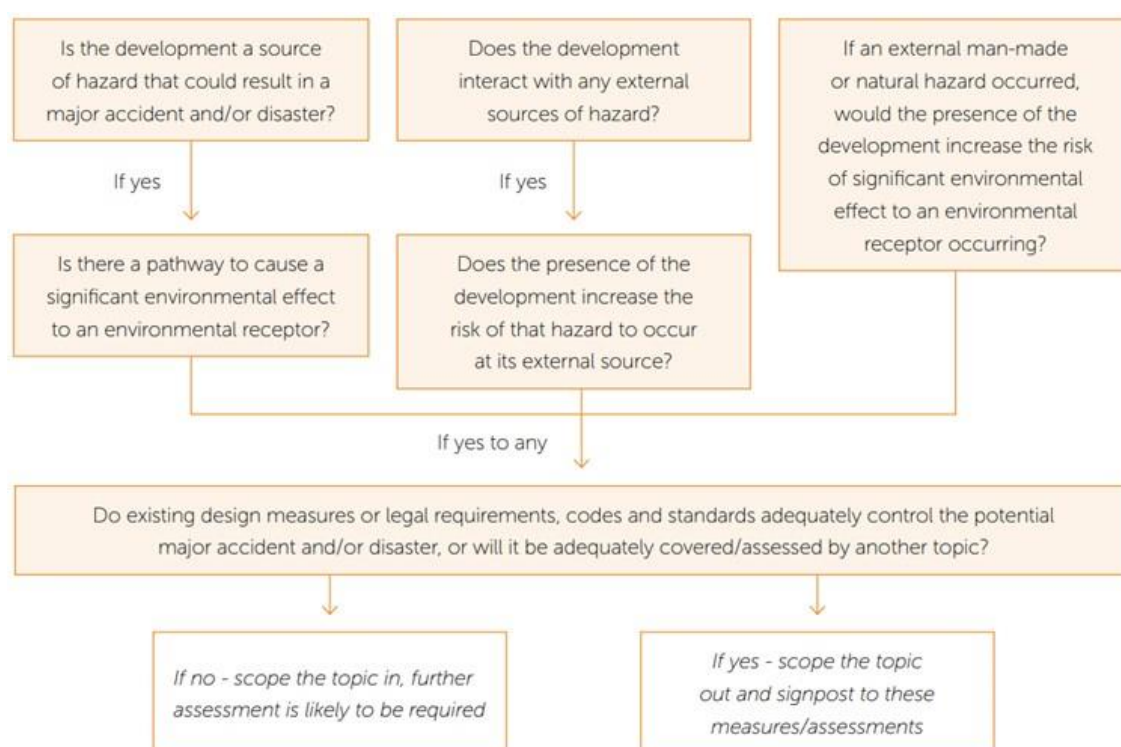


Figure 5-2 ISEP Primer Screening Tool Methodology

- 5.3.20 Of particular relevance to the Scheme is the final stage in the ISEP Primer screening process (as shown in Insert 5-13). This is because the largely rural location / setting of the Scheme, coupled with the anticipated overarching regulatory requirements, codes and standards, assessments and the management and control measures to be applied will mean that the design, construction, operation and management of the facility will be such that the answer to the last stage of the ISEP Primer Screening Tool (Insert 5-2) is very likely to be 'yes - scope the topic out and signpost to these measures / assessments'.
- 5.3.21 A description of the construction and operational phases of the Scheme can be found in Chapter 4. Typically, the majority of construction related risks will be identified, assessed and controlled through existing legislation, construction risk assessments and management plans and can be scoped out of further assessment in the EIA process.

5.3.22 Construction, operation and decommissioning of the Scheme will be governed by a raft of health, safety and environmental related regulatory requirements and management plans. As suggested in the ISEP Primer, signposting to evidence for the measures, regulations, consents, requirements, standards, codes, practices, studies / assessments and features that will apply to the Scheme can be provided to justify scoping out further assessment of MA&D. A summary of some of the key aspects is provided in Table 5-6.

Table 5-6 Summary of MA&D related Regulatory Regimes, General Design Standards and Management Plans and Assessments

Aspect	Summary Description
Regulatory Regimes	
Construction (Design and Management) Regulations 2015 (CDM Regulations) ⁷¹	The Scheme will be subject to the CDM Regulations. The purpose of these regulations is to improve health and safety by making sure work is planned properly and risks are managed from start to finish. The CDM Regulations place specific duties on clients, designers, and contractors so that health and safety is considered throughout the life of a construction development from its inception to its subsequent final demolition and removal. Under the CDM Regulations, designers are required to avoid foreseeable risks so far as reasonably practicable by eliminating hazards from the construction of a structure, reducing risks from any remaining hazard, and giving collective safety measures priority over individual measures.
The Health and Safety at Work Act 1974 ⁷² and Management of Health and Safety at Work Regulations 1999 ⁷³	The Health and Safety at Work Act is the main legislation in Great Britain that provides the legal framework for workplace health, safety, and welfare. The overriding principle of the Health and Safety at Work Act is that foreseeable risks to persons in workplaces shall be reduced so far as is reasonably practicable. In addition, adequate evidence should be produced to demonstrate that this has been done. This applies to both construction and operation.

⁷¹ Health and Safety Executive (2015) The Construction (Design and Management) Regulations 2015. Available at: <https://www.hse.gov.uk/construction/cdm/2015/index.htm>

⁷² Health and Safety at Work etc. Act 1974. Available at: <https://www.legislation.gov.uk/ukpga/1974/37/contents>

⁷³ The Management of Health and Safety at Work Regulations 1999. Available at: <https://www.legislation.gov.uk/uksi/1999/3242/contents>

Aspect	Summary Description
The Electricity at Work Regulations 1989 ⁷⁴	The Electricity at Work Regulations are health and safety laws requiring precautions against death or serious injury. They apply to employers and employees and mandate that equipment is constructed, maintained and operated safely to prevent danger.
Environmental Permitting (England and Wales) Regulations 2016 (EPR) ⁴³	The EPR establish the environmental permitting and compliance regime that applies to England and Wales. The EPR require operators of certain facilities and activities to obtain permits and provide for ongoing supervision by the relevant regulators. At present, BESS do not fall within the remit of the EPR; however, proposals to bring BESS into the EPR are currently under consultation. The Applicant will continue to monitor and review potential changes to the EPR as the Scheme evolves.
The Planning (Hazardous Substances) Regulations 2015 ⁷⁵	It may be the case that, depending on the design of the BESS, HSC may be required prior to construction. This is a required consent for all developments that store or use hazardous substances at or above defined limits. However, at this time it is not currently envisioned that the design of the BESS will breach the limits required to trigger the need for HSC.
General Design Standards and Management Plans	
Battery Safety Management Plan	An oBSMP will be submitted with the DCO application and a detailed BSMP (dBSMP) will be secured as a requirement of the DCO. The outline BSMP will ensure that safety is considered during the design stage and acts as a framework for the dBSMP, which is required before construction. The dBSMP will be followed by a site safety audit which will look to ensure that all of the commitments in the dBSMP have been applied. BSMPs are based on the recommendations of the NFCC Planning Guidance for Solar Grid BESS ⁶² . Key components in an oBSMP typically include: ▪ Description of the BESS: details on the technology (e.g. lithium-ion), battery chemistry, container units, and layout.

⁷⁴ The Electricity at Work Regulations 1989. Available at: <https://www.legislation.gov.uk/uksi/1989/635/contents>

⁷⁵ The Planning (Hazardous Substances) Regulations 2015. Available at: <https://www.legislation.gov.uk/uksi/2015/627/contents>

Aspect	Summary Description
	▪ Safety design features: descriptions of fire suppression systems, thermal management, explosion venting, and fire detection systems. ▪ Risk assessment: identification of potential failures (thermal runaway, fire, toxic fumes) and their impacts on health, safety, and the environment. ▪ Emergency Response Plan (ERP): pre-fire planning, evacuation procedures, site access for emergency services, and water supply for firefighting. ▪ Operational management: procedures for maintenance, staff training, site inductions, and monitoring. ▪ Consultation and compliance: evidence of consultation with local FRS and relevant safety standards (e.g. Publicly Available Specification (PAS) 9980 or National Fire Prevention Agency (NFPA) standards). ▪ HSC: detailed design information will be utilised to confirm whether a HSC is required. As part of the BSMP process a Hazard and Operability Study (HAZOP) / (Hazard Identification Study) HAZID assessment for a generic BESS installation has been undertaken resulting in a generic Hazard Log. As the Scheme progresses (when more details are known about the model of the BESS units, other infrastructure and the control measures to be implemented) a workshop will be held, and the Hazard Log will be revised and updated.
Security	Security fencing for NSIPs must adhere to rigorous standards designed to protect critical assets from sabotage, terrorism and theft. Fencing must be chosen through a site-specific risk assessment. As of 2026, the primary authority for these standards is the National Protective Security Agency (NPSA). The NPSA has produced guidance⁷⁶ for those responsible for developing, designing and delivering a new perimeter solution. At this time, it is proposed that infrared security cameras will be installed to cover the entire site. Fencing will be in place across the entire site, typically deer fencing, except for the substations where palisade fencing will be needed owing to threat to life from electrical infrastructure.

⁷⁶ National Protective Security Authority (2025) Security Fences and Gates. Available at: <https://www.npsa.gov.uk/building-protection/building-infrastructure/security-fences-and-gates>

Aspect	Summary Description
General construction practices and CEMP	The construction of the Scheme will be undertaken in accordance with standard good practices and with adherence to legislation and general risk management procedures for construction work, including the production of a comprehensive CEMP. An oCEMP will be submitted as part of the DCO application.
Construction Traffic Management Plan (CTMP)	A CTMP will be prepared and implemented to carefully manage access and routing to ensure any potential risks are managed appropriately.
Environmental Management Plan (EMP) / Environmental Management System (EMS)	An Operational OEMP will be prepared and implemented for the operation of the Scheme to minimise and manage impacts to the environment. An OEMP will be submitted as part of the DCO application.
General decommissioning practices and oDEMP	The decommissioning of the Scheme will be undertaken in accordance with standard good practices and with adherence to legislation and general risk management procedures for decommissioning work. An oDEMP will be submitted as part of the DCO application.
Other Studies, Assessments and Reports	
Design Parameters and Principles	A Design Parameters and Principles document will be produced to support the DCO application.
Flood Risk Assessment	Consideration of MA&D relating to flooding will be assessed in a standalone FRA through application of the sequential test.
Transport Assessment	Consideration of MA&D relating to traffic and transport will be assessed in a standalone TA, which will consider the transport of batteries and potential mitigation measures applied to minimise the risk of accidents in transit.
Geotechnical Report	A Geotechnical Investigation (GI) will be undertaken. The scope of the GI and any geotechnical works / the geotechnical report need to be informed by detailed design and so would be expected to be undertaken at a later stage in the project cycle.

- 5.3.23 Potential MA&D that could be relevant to the Scheme have been identified through consideration of the national and CRRs, along with the Applicant's knowledge and experience of developing, building and operating Solar and BESS Schemes in the UK. Table 5-7 provides the potential MA&D that could occur during the construction, operation or decommissioning of the Scheme, the potential receptors and the key rationale for scoping out this topic from the ES, highlighting the main mitigation and / or control measures that will be in place to ensure no likely significant effects. The reasoning for scoping out should be considered in conjunction with the information in Table 5-6.

Table 5-7 Summary of MA&D and Main Reasoning for Scoping Out

Potential Impact	Primary potential Receptors	Scoping decision and Justification
Electrical fires and explosions	Human receptors ^(a) , ecological receptors ^(b) and the built environment.	As detailed in Section 5.5 of Chapter 5 (Air Quality), there is a low risk of electrical fire within the BESS. Fire safety can be split into two main elements – site design and BESS design. <u>Site design</u> will be undertaken in accordance with relevant guidance and legislation, with appropriate regulatory / monitoring equipment (e.g. infrared sensors) installed and with monitoring procedures and management plans in place. As noted previously, a BSMP will be implemented and this will be fundamental in ensuring appropriate design, monitoring and management. The BSMP will ensure that risk assessment is undertaken and fed into the design process to ensure that impacts of fire plume gases on health, safety, and the environment are minimised, managed and controlled. The BSMP will also address firefighting, firewater control and emergency response. At this time, it is envisaged that firewater is likely to be stored in tanks at the BESS (in accordance with FRS requirements) and that an impermeable firewater containment system will be designed so that firewater can be captured and either treated prior to release or tankered offsite for disposal. <u>BESS Design</u>: BESS safety is typically driven by the US Standard NFPA 885⁷⁷. This has led to Underwriters laboratory (UL) Standards UL1973 (Designing BESS Safely)⁷⁸ and UL9540 (BESS Testing)⁷⁹. Any BESS imported into the UK will need to comply with the Supply of Machinery Safety Regulations 2008. In addition, BESS manufacturers exporting to the UK are required to

⁷⁷ NFPA (2026) NFPA 855. Available at: <https://www.nfpa.org/codes-and-standards/nfpa-855-standard-development/855>

⁷⁸ Intertek (2023) UL1973 (Designing BESS Safely). Available at: <https://cdn.intertek.com/www-intertek-com/dms-legacy/UL-1973-SUN-Rev-2-25-2022-ED-2-25-2024.pdf>

⁷⁹ UL Solutions (2026) UL9540A Test Method for Battery Energy Storage Systems (BESS). Available at: https://www.shopulstandards.com/ProductDetail.aspx?productId=UL9540A_5_S_20250312

Potential Impact	Primary potential Receptors	Scoping decision and Justification
		ensure that the UL9540 series of tests have been carried out, including Large Scale Fire Testing (LSFT). In particular, these tests are required to demonstrate that the BESS enclosure will retain a fire inside the unit for a minimum of 1 hour. In addition, there will be a live 24/7 data reporting system from the BESS units to a control room. Batteries will automatically shut down if a problem / fault is detected. There have currently been four reported BESS fires in the UK that have required FRS attendance; however, to date there have been no recorded fatalities, third-party injuries, or environmental damage resulting from BESS incidents in the UK. The current operational UK BESS installations have accumulated an estimated 741 years of operation; this equates to 270,500 days or 6.5 million hours of operation.
Glint and glare	Pilots / aviation facilities Road users Residents	See Chapter 15 Glint and Glare. Based on design and implementation of appropriate measures, glint and glare is not anticipated to result in significant effects.
COMAH Sites	Human receptors, ecological receptors and the built environment.	There are no designated COMAH regulation sites located within 500 m of the Site and no significant effects are likely to occur from the interaction with, or from, COMAH sites.
Utilities damage/ strike	Utility providers and human receptors.	Utilities strike / damage is either: not considered likely to result in an event that would qualify as a MAD (as defined above); and /or would be covered off by standard good working practice and implementation of the CEMP and protective provisions in the DCO.

Potential Impact	Primary potential Receptors	Scoping decision and Justification
Geohazards	Human receptors, ecological receptors and the built environment.	See Chapter 7 Ground Conditions and Contamination. The hazard potential for unexploded ordnance is low and has been scoped out of further assessment. Ground gas migration and accumulation is assessed as low risk and has been scoped out of further assessment. Land stability and geohazards generally will be considered following the proposed GI works as part of the geotechnical design stage.
Flood Risk	Human receptors, ecological receptors and site infrastructure.	See Section 5.7 Water Environment. Flooding from rivers and surface water have been scoped into the ES. An FRA and surface water drainage strategy will be submitted with and secured by the DCO.
Vulnerability to climate change (excluding flood risk)	Human receptors and ecological receptors.	The Scheme will be designed to account for the potential risks associated with vulnerability to Climate Change. See the Climate Change Vulnerability (Section 5.6 of Chapter 5) for more details, where it is proposed that vulnerability to climate change is to be scoped out from further assessment in the ES.
Traffic and road accidents	Road users and pedestrians.	Traffic and road accidents is covered in Chapter 10 Traffic and Access. Effects arising during the operational phase are anticipated to be limited and are proposed to be scoped out of the ES. The construction and decommissioning phases of the Scheme are to be scoped in. A Transport and Access Assessment will be undertaken. A CTMP will be implemented to manage and minimise potential risks, secured as a requirement of the DCO. An oCTMP will be submitted with the DCO application.

Potential Impact	Primary potential Receptors	Scoping decision and Justification
Accidental spillages	Human receptors and ecological receptors and geological receptors (land / groundwater / aquifers).	The potential for accidental spills during construction will be typical of any construction site and easily mitigated through standard good working practices and implementation of the CEMP. During operation, no chemicals / substances will be stored on the Site that could give rise to a MAD as a result of an accidental spill following standard measures implemented via the oOEMP, including (but not limited to) regular inspections of areas where materials are being stored and training for those handling such materials.
Infestation/ spread of vegetation pests and diseases	Ecological receptors	Mitigation and enhancement measures may include new planting, which can be susceptible to disease and pests, and this will be addressed within the oLEMP that will be submitted with the DCO Application. Infestation / spread of pests and diseases that meet the scale of those required to constitute a major accident or disaster are considered very unlikely as a result of the Scheme and any such spread of Invasive Non Native Species (INNS) would be controlled via the implementation of the LEMP. Therefore, there are unlikely to be any significant impacts, and it is proposed that this is scoped out of the ES.
Crime/ terrorism	Human receptors and National infrastructure	Solar energy systems are connected to the electrical grid and may have frequent communication with utility control and automation systems. It is widely accepted that there are threats posed to critical national infrastructure from terrorism, both 'conventional' and cyber, due to the reliance on Information and Communications Technologies in the electricity system which presents vulnerability. Industry standard control measures will be implemented by the Scheme. The Scheme could be vulnerable to crime such as vandalism or arson which may either result in death or injury to the person concerned or could result in a fire. Appropriate security measures will be implemented across the Scheme as described in Chapter 4, and fire risk is considered under Electrical Fires and Explosions above.

Potential Impact	Primary potential Receptors	Scoping decision and Justification
Table Notes: (a) The term 'human receptors' refers to local populations / residents as well as site workers (where applicable). (b) In the context of the assessment of MA&D, 'ecological receptors' refers to designated sites and the species and habitats within them, non-designated sites (and the habitats within them) and wide-spread habitat.		

Cumulative Effects

- 5.3.24 Cumulative effects in relation to MA&D are not considered likely. Should cumulative effects be identified, these will be addressed within the Cumulative Effects chapter within the ES.

Summary

- 5.3.25 It is not considered that a standalone MA&D assessment is likely to be required for any phase of the Scheme; this conclusion is based on a combination of the following factors:
- The guidance in the ISEP Primer⁶¹;
 - The largely rural location of the Scheme;
 - The Scheme will be designed and built in accordance with the relevant health and safety legislation, regulations and industry guidance;
 - Appropriate management plans will be implemented to control and mitigate risks;
 - Related assessments will be part of the other technical sections of the ES; and
 - Other assessments that may be undertaken outside of the EIA, either as standalone documents to support the DCO application and / or to support other regulatory regimes / purposes.

5.4 Socio-Economics

Overview

- 5.4.1 This Section of Chapter 5 addresses the potential for the Scheme to result in significant effects on Socio-Economics.
- 5.4.2 A qualitative appraisal has considered businesses, employment and economic value in the construction, operational and decommissioning phases of the development.

Relevant Legislation, Policy and Guidance

- 5.4.3 The following legislation, policy and guidance has been considered within this scoping exercise and will be taken forward for the socio-economic assessment for the Scheme.
- 5.4.4 Relevant National Policy includes:
- NPS for Energy (EN-1)¹³
 - NPS for Renewable Energy Infrastructure EN-3¹⁴

- The NPPF¹⁸

5.4.5 Relevant Local Policy Includes:

- WaCC:
 - Warwickshire Energy Strategy (2023)⁸⁰
 - Warwickshire Strategic Economic Growth Strategy Delivery Plan (2024 – 2034)⁸¹
 - South Warwickshire (Warwick District Council & SoADC) SWLP – Preferred Options (2025)²⁶
 - South Warwickshire – South Warwickshire Economic Strategy (2023–2028)⁸²
- SoADC:
 - Stratford-on-Avon Core Strategy Policy CS.3 (2011 – 2031)²⁵
 - Stratford-on-Avon Climate Emergency Declaration (2019)⁸³
 - Stratford-on-Avon Development Requirements SPD (Part 1 updated 2024)⁸⁴
 - SoADC – Economic Development Strategy (2018 – 2031)⁸⁵
- Worcester County Council:
 - Worcester Energy Strategy and Evidence Base (2025)⁸⁶
 - WoCC Plan for Growth (2020–2040)⁸⁷
- ReBC:
 - Redditch Local Plan No. 4 (2011–2030)²³
 - Redditch Council Plan (2025–2028)⁸⁸

⁸⁰ Warwickshire County Council (2023) Energy Strategy. Available at: <https://api.warwickshire.gov.uk/documents/WCCC-1980322935-2593>

⁸¹ Warwickshire County Council (2024) Warwickshire Strategic Economic Plan (2024-2034). Available at: <https://democracy.warwickshire.gov.uk/documents/s37321/Appendix%201%20for%20Warwickshire%20Economic%20Growth%20Strategy%20Delivery%20Plan%202024-2026.pdf>

⁸² Warwick District Council (2026) Warwickshire Economic Strategy (2023–2028). Available at: https://www.warwickdc.gov.uk/downloads/file/8568/swp_economic_development_strategy

⁸³ Stratford on Avon District Council (2022) Climate Emergency. Available at: <https://www.stratford.gov.uk/council-democracy/climate-emergency.cfm>

⁸⁴ Stratford on Avon District Council (2024) Development Requirements SPD. Available at: <https://www.stratford.gov.uk/planning-building/development-requirements-spd.cfm>

⁸⁵ Stratford-on-Avon District Council (2023) Economic Development Strategy. Available at: <https://www.stratford.gov.uk/business-investment/economic-development-policies-resources.cfm>

⁸⁶ WLEP (2025) Key Findings Report for Worcestershire Energy Strategy. Available at: <https://www.wlep.co.uk/wp-content/uploads/Energy-Strategy-Evidence-Base-July-2025.pdf>

⁸⁷ Worcestershire Local Enterprise Partnership (2020) Worcestershire County Council Plan for Growth (2020–2040). Available at: <https://www.worcestershire.gov.uk/sites/default/files/2024-10/WLEP%20PfG%20Document%20-%202024%20accessibility%20update%20V2.pdf>

⁸⁸ Redditch Borough Council (2025) Redditch Borough Council Plan 2025-28. Available at: <https://www.redditchbc.gov.uk/media/zfhxwxd/rbc-council-plan-25-28-digital-final-v2.pdf>

Baseline

- 5.4.6 The Scheme is located on agricultural land across rural Worcestershire and Warwickshire, with nearby settlements such as Abbots Morton, Weethley, Wood Bevington, Dunnington, Wixford, Salford Priors, Broom, Bidford-on-Avon, Marlcliff, Bickmarsh, Cleeve Prior, South Littleton, Middle Littleton and North Littleton comprising of residential populations, businesses, community facilities and recreational assets such as PROW.
- 5.4.7 The Site is located across the Redditch, Wychavon, and Stratford-on-Avon Local Authority Districts (LADs). As of 2024, the LADs had a population of 87,847, 138,017, and 146,258 people, respectively. The population density of Redditch is 1,619 people per square kilometre, significantly higher than Wychavon and Stratford-on-Avon LADs (208 and 150, respectively).
- 5.4.8 In 2023, the most recent year for which data is available from the Office for National Statistics (ONS)⁸⁹, the three LADs had a gross disposable household incomes per head of:
- Redditch – £21,525
 - Wychavon - £26,718
 - Stratford-on-Avon - £32,164
- 5.4.9 Of the LADs, Stratford-on-Avon has a significantly higher gross disposable income per head than the national average in 2023 of £23,192.
- 5.4.10 Regarding employment, the employment rates across the three LADs in 2023 were as follows:
- Redditch – 81.8%
 - Wychavon – 76.6%
 - Stratford-on-Avon – 85.3%
- 5.4.11 For Redditch and Stratford-on-Avon, these figures represent a significantly higher employment rate compared to the national average of 76.6%, whilst Redditch has the same value. Across the LADs, the top three largest employment sectors are wholesale and retail trade, manufacturing, and health and social care. Across the LADs, agricultural jobs made up an average of 1.8% of total employees.

⁸⁹ Office for National Statistics (2023) West Midlands. Available at: <https://www.ons.gov.uk/explore-local-statistics/areas/E12000005-west-midlands>

- 5.4.12 Qualification and skills levels are broadly in line with national averages with some notable variation. In 2023, all of the LADs had a lower percentage of people with no qualifications compared to the national average of 6.6% by at least one percentage point. However, only Stratford-on-Avon had a higher percentage of those with General Certificate of Secondary Educations (GCSEs) in English and Maths (85.4%) compared to the national average (76.5%), whilst Redditch (66.9%) and Wychavon (75.4%) were below the national average.
- 5.4.13 It is noted that Site 4 is located near National Cycle Network (NCN) route 41 which predominantly runs northeast from Honeybourne towards Long Marston.
- 5.4.14 There are also multiple PRow, including footpaths, bridleways and byways that intersect land parcels or run alongside access routes.

Likely Significant Effects and Proposed Mitigation

- 5.4.15 Given the location of the Site and nature of the Scheme, there is the potential for the Scheme to provide both beneficial and adverse socio-economic effects during the construction, operation and decommissioning phases as set out in Table 5-8.

Table 5-8 Socio-economic Receptors, Potential Effects and Justification for Scoping Out of the Assessment

Receptor	Description of Potential Effect	Justification for Scoping Out of the Assessment
Agricultural Businesses	Adverse: The Site is currently used as agricultural land, primarily for crop cultivation. Development or changes to land use may disrupt these activities, potentially reducing agricultural productivity. Beneficial: The Scheme offers landowners an opportunity to diversify their income streams beyond traditional agricultural uses, supporting greater financial resilience. The Scheme will also offer potential dual use of the land, for both	Construction and Decommissioning Phase: Both the construction and decommissioning phases of the Scheme are anticipated to be temporary and short-term in duration. As such, any associated disturbance or changes to existing socio-economic conditions will be limited to these discrete periods. Given their temporary nature, effects arising during construction and decommissioning are therefore expected to be minimal and not significant Following decommissioning, there is commitment that the land will be restored as far as practicable and returned to its original agricultural use. Agricultural impacts, including associated economic effects, will be assessed separately (see Chapter 9: Soils and Agriculture). The CRC Search Area comprises predominantly agricultural land. As the cable installation will be undertaken underground, any disruption to existing land uses will be temporary and limited to the construction period. On this basis, socio-economic effects associated with the CR are expected to be minimal and not significant Operation Phase: The Site is under the control of willing landowners who are supportive of the Scheme. The land is currently in agricultural use. Although the Scheme will alter existing farming activities, there remains potential for parts of the land to continue supporting agricultural functions — for instance, through the grazing of sheep and other livestock within fields containing solar panels. There will be a loss of some existing farming activities due to the Scheme, but the Scheme will provide farmers with an alternative income source. Therefore, effects on farming businesses are anticipated to be not significant. As noted above, the loss or alteration of agricultural activities associated with the Scheme is temporary. Following

Receptor	Description of Potential Effect	Justification for Scoping Out of the Assessment
	energy generation and grazing of livestock, supporting wider farming practices.	decommissioning, the land will be reinstated, enabling the resumption of previous agricultural uses, which are expected to continue should the landowner wish to do so. Accordingly, any changes to farming activities are considered reversible, recognising that the specific post-decommissioning land use ultimately remains at the landowner's discretion.
Employment and Skills Effects	Adverse: No adverse effects relating to employment and skills are anticipated because of the Scheme. Beneficial: The Scheme may have some beneficial employment and skills effects through opportunities for residents and the wider supply chain.	Construction and Decommissioning Phase: The construction and decommissioning phases of the Scheme will generate temporary employment across a range of occupations and skill levels, including civil engineering, groundworks, electrical installation, fencing, security, and site management. However, much of this labour demand is expected to be met by the relocation of existing workforces as specialised workforce typically move from project to project. This reflects industry practice, whereby construction personnel are redeployed across successive schemes rather than recruited locally for each individual project. As a result, some of the opportunities available to local residents are likely to be limited outside of groundworks and other non-specialist tasks. An outline Skills, Supply Chain and Employment Plan (oSSCEP) will be prepared as part of the DCO application to identify opportunities to maximise the creation of local jobs. Indirect employment will also be supported through multiplier effects within the supply chain. Nevertheless, based on the Applicant's current understanding, many of the Scheme's key physical components are expected to be sourced from outside the UK. This limits the potential for local supply-chain engagement and reduces associated economic benefits. Overall, the employment and skills effects during construction and decommissioning are not predicted to be significant. Operational Phase:

Receptor	Description of Potential Effect	Justification for Scoping Out of the Assessment
		The Scheme is expected to generate very limited employment and skills opportunities during the operational phase. Routine maintenance activities are likely to be delivered by an existing regional maintenance workforce rather than through the creation of new local jobs. This is industry practice due to operational labour requirements being low and highly specialised. The regional maintenance teams will typically service multiple solar sites across a wide geographic area on a rotational basis, and a large new solar development would increase the demand for these jobs resulting in the creation of approximately 5 Full Time Equivalent posts. This would not be significant. Planting and landscaping maintenance contracts may be awarded to landowners and their farm workers where they wish to bid for these. In the event of panel and/or battery replacement further employment will be supported. However, similar to employment during the construction phase, these jobs are not anticipated to be new jobs – the operational tasks will be undertaken by an existing specialist workforce resulting in a non-significant effect on local employment and skills. The Scheme will allow farming of livestock such as sheep grazing to continue alongside the solar arrays. As such, any loss of agricultural employment and skills is expected to be minimum. Landowners will also receive appropriate compensation for the temporary loss or alteration of agricultural land supporting the viability of existing farming businesses throughout the operational period. As such, the operational phase is anticipated to result in negligible employment and skills effects, and these impacts are assessed as not significant.

Receptor	Description of Potential Effect	Justification for Scoping Out of the Assessment
Economic Output	Adverse: No adverse effects to economic output are anticipated. Beneficial: Employment supported will generate Gross Value Added (GVA) to the regional economy.	Construction and Decommissioning Phase: There will be some GVA generated through construction employment, however, for the reasons explained above, the area of impact for the receptor will be the wider UK rather than the local area and as such impact to national GVA will be not significant. Operational Phase: Although the operational phase has the potential to support some employment, as explained above this is anticipated to be a small existing workforce outside of the local area. This workforce will contribute very little to GVA and as such any effect on economic output is not expected to be significant.
Tourism and Recreation	Adverse: No Adverse effect on local tourism is anticipated from the Scheme Beneficial: No beneficial effect on local tourism is anticipated from the Scheme	Construction, Operational and Decommissioning Phase: Across the construction, operational and decommissioning phases, the Scheme is not expected to affect any major roads, and no significant disruption to transport routes or connectivity is anticipated. The Sites are also not located in close proximity to any major tourist attractions, meaning the Scheme is unlikely to influence tourism activity. While The Bidford Gliding Club is a known local recreational asset situated near Site 3, it will remain accessible and operational throughout all phases of the Scheme. Accordingly, no significant effects relating to tourism, or recreation are anticipated.
Accommodation	Adverse: No Adverse effect on accommodation is anticipated from the Scheme	Construction and Decommissioning Phase: The Scheme would likely require a large construction workforce. The number of construction workers that would be required during the Construction and Decommissioning Phases is not yet known, but high level estimates can be found by

Receptor	Description of Potential Effect	Justification for Scoping Out of the Assessment
	Beneficial: No beneficial effect on accommodation is anticipated from the Scheme	analysing similar schemes. Through this method, it is estimated that the Scheme would require between 300 and 700 workers at the peak of the Construction Phase. As of 2021, approximately 47,071 construction workers were active across Worcestershire and Warwickshire⁸⁹. Considering the worst case scenario peak of 700 workers this would amount to approximately 1.4% of this workforce which would be in a commutable distance to site. However, specialists workers would be required for the construction phase that may need to be sourced from further afield. Even so, given the above it is unlikely that this would place a significant burden on tourist accommodation in the area. Operational Phase: The operational workforce is anticipated to be small and routine maintenance activities are likely to be delivered by an existing regional maintenance workforce who will operate on a travel-in, travel-out basis from their home base or regional depot. Additionally, many non-specialist jobs such as landscape maintenance would be filled locally wherever possible. As such there will not be a need for overnight stays. As such the effects on accommodations are anticipated to be not significant.
Shops	Adverse: No adverse effects to local shops are anticipated. Beneficial: Local shops could benefit from additional footfall and expenditure	Construction and Decommissioning Phases: The anticipated construction workforce could impact local shops through predominantly food and drink expenditure. Whilst this will benefit local shops and services, the effects are not expected to be significant. For such a Scheme, construction teams are likely to be highly mobile, and present on site only for a short and defined period each day. Specialist workers will largely generally travel in from within the wider region and do not depend on local services for extended stays or day-to-day needs. However, local construction workers will already depend on these services. As a result, any increase in spending at local shops, cafés, and other services is expected to be small in scale, temporary, and highly localised. Given the limited

Receptor	Description of Potential Effect	Justification for Scoping Out of the Assessment
	created by the construction / decommissioning or operational workforce.	duration of the workforce, and the nature of the construction activities, the overall beneficial effect on the local shops is therefore anticipated to be minor and not significant. Operational Phase: As mentioned above, the operational phase is anticipated to support some employment and there may be some food and drink expenditure in nearby shops to the Sites, however this is likely to be not significant.
PRoW	Chapter 14 Population and Human Health	Potential effects on PRoW are addressed in Chapter 14 Population and Human Health.
Population	Chapter 14 Population and Human Health	Potential effects on Population are addressed in Chapter 14 Population and Human Health.

- 5.4.16 For the reasons set out in Table 5-8 above, it is proposed that the socio-economic chapter is scoped out of the ES.

5.5 Air Quality

Overview

- 5.5.1 This Section of the Scoping Report addresses the potential for the Scheme to result in significant effects on air quality, and consequently whether a standalone topic chapter will be required in the ES.
- 5.5.2 A qualitative appraisal has considered emissions from the construction, operational and decommissioning phases of the development including that from on-site processes, construction and operational traffic and construction dust.

Relevant Legislation, Policy & Guidance

- 5.5.3 This section of the Scoping Report has had regard to the following legislation, policy and guidance documents relevant to the assessment of air quality:
- Legislation:
 - Environment Act 2021⁹
 - Environmental Protection Act 1990³⁸
 - The Air Quality Standards (2010)⁹⁰;
 - The Air Quality Standards (Amendment) Regulations 2016⁹¹
 - Policy:
 - Overarching NPS for Energy (EN-1) 2025¹³
 - NPS for Renewable Energy Infrastructure (EN-3) 2025¹⁴
 - The Environmental Permitting (England and Wales) Regulations 2016⁴³
 - The Environment Targets (Fine Particulate Matter) (England) Regulations 2023⁹²
 - Non-road mobile machinery Regulations 2018⁹³

⁹⁰ The Air Quality Standards (Amendment) Regulations 2016. Available at: <https://www.legislation.gov.uk/uksi/2010/1001/contents>

⁹¹ The Air Quality Standards (Amendment) Regulations 2016. Available at: <https://www.legislation.gov.uk/uksi/2016/1184/contents/made>

⁹² The Environment Targets (Fine Particulate Matter) (England) Regulations 2023. Available at: <https://www.legislation.gov.uk/uksi/2023/96/contents/made>

⁹³ The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018 (SI 2018.764) Available at: <https://www.legislation.gov.uk/uksi/2018/764>

- Defra Environmental Improvement Plan, December 2025⁹⁴
- The NPPF¹⁸
- The Air Quality Strategy (AQS): framework for local authority delivery⁹⁵
- Guidance:
 - PPG for Air Quality⁹⁶
 - Institute of Air Quality Management (IAQM) Guidance on the Assessment of Dust from Demolition and Construction⁹⁷
 - Environmental Protection UK (EPUK), and IAQM Land-Use Planning & Development Control: Planning for Air Quality⁹⁸
 - The Clean Air Strategy 2019⁹⁹
 - Defra Local Air Quality Management Technical Guidance (LAQM.TG(22))¹⁰⁰
 - SWDP²⁴
 - SoADC Core Strategy²⁵
 - ReBC Local Plan No.4²³

5.5.4 In addition, this section of the Scoping Report has had regard to the PINS *Technical Advice Page for Scoping Solar Development – Solar Scoping Table*³². PINS have provided this non-statutory guidance and advice on the scope of NSIP solar developments. The guidance recommends that information should be included on air quality receptors and the anticipated impacts. These matters are discussed further within this section of the report below.

⁹⁴ Defra, (2025) Environmental Improvement Plan (EIP) 2025. Available at: <https://www.gov.uk/government/publications/environmental-improvement-plan-2025/environmental-improvement-plan-eip-2025>

⁹⁵ Defra, (2023), Air quality strategy: framework for local authority delivery. Available at: <https://www.gov.uk/government/publications/the-air-quality-strategy-for-england/air-quality-strategy-framework-for-local-authority-delivery>

⁹⁶ Ministry of Housing, Communities and Local Government, Ministry of Housing, Communities & Local Government (2018 to 2021) and Department for Levelling Up, Housing and Communities, (2019), Planning Practice Guidance for Air Quality. Available at: <https://www.gov.uk/guidance/air-quality--3>

⁹⁷ IAQM (2024), Construction-Dust-Guidance – Guidance on the assessment of dust from demolition and construction. Available at: <https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf>

⁹⁸ IAQM, (2017), Land-Use Planning & Development Control: Planning For Air Quality. Available at: <https://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

⁹⁹ Defra, (2019), Clean Air Strategy 2019. Available at: <https://assets.publishing.service.gov.uk/media/5c3b9debe5274a70c19d905c/clean-air-strategy-2019.pdf>

¹⁰⁰ Defra, (2025), Local Air Quality Management Technical Guidance (TG22). Available at: <https://laqm.defra.gov.uk/wp-content/uploads/2021/03/LAQM-TG22-May-25-v2.1.pdf>

- 5.5.5 The guidance also provides examples of the types of evidence/assumptions to be provided in the EIA Scoping Report 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 Area (AQMA); and
 - Likelihood of exceedance of relevant thresholds set out in the appropriate guidance on the need to undertake an assessment of effects (such as IAQM guidance).
- 5.5.6 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 a draft control document; and
 - Buffer zones and / or screening.
- 5.5.7 Evidence and assumptions relied upon in scoping out aspects of the assessment are provided within this section of the report below.
- 5.5.8 The Commitments Register presented in Volume III, Appendix A2.2 submitted alongside the Scoping Report provides the mitigation proposed and relied upon based on the scope of the assessment presented in this Chapter.

Baseline

Local Air Quality Management

- 5.5.9 Air quality monitoring is undertaken by national and local authorities and is a key component of local air quality management. Measurement of pollutant concentrations include those made by analytical instruments that measure continuously, and passive sampling devices such as diffusion tubes.

- 5.5.10 ReBC, WyDC and SoADC each operate a network of diffusion tubes across their local authority areas to measure concentrations of Nitrogen di Oxide (NO₂). No monitoring locations are considered local to the Site, with the closest located more than 4 km to the southwest within Evesham. There are no local or national continuous monitoring stations operating within the study area, with the nearest being operated by WyDC and located in Wychbold approximately 10 km northwest of the Site.

Air Quality Management Areas

- 5.5.11 The Scheme passes through the local authority areas of ReBC, WyDC and SoADC. There are no AQMAs within 1 km of the Site. The nearest AQMAs are located in Stratford-Upon-Avon town centre (6 km east northeast of sub-Site 3(g)) and Alcester Road A435 in Studley (6 km northeast of the Feckenham substation). Neither are likely to be affected by the Scheme.

Sensitive Receptors

- 5.5.12 The Scheme is located close to the A46, A422, B4088 and B4085. Sensitive human health receptors within 1 km of the Site include residential properties and schools. The closest residential receptors to the Site are a number of individual residential properties adjacent to sub-Sites 1(b), 1(c), 1(d), 3(a) and 4. Additionally, larger groups of residential properties are located; on Millers Bank, approximately 60 m east of sub-Site 2(b); King's Lane, approximately 100 m east of sub-Site 2(e), and Shinehill Lane, approximately 150 m north of Site 4. Cleeve Priory Church of England Primary School is also located approximately 250 m southwest of sub-Site 3(b). Finally, the Bidford Gliding Club airstrip is located adjacent to, and between sub-Sites 3(b) and 3(c).
- 5.5.13 The location of sensitive ecological receptors has been identified using Natural England datasets¹⁰¹ within a GIS system. Several areas of Ancient Woodland have been identified surrounding the Site boundary; the closest site of Ancient Woodland is Bush Wood, lying north and south of Alcester Road, immediately adjacent sub-Sites 1(c) and 1(e). Weethley Wood is immediately adjacent to sub-Site 1(e), Williams Wood is immediately adjacent to sub-Sites 1(b) and 1(c), Commissioners Wood is immediately adjacent to sub-Site 1(a) and Ennister Wood is immediately adjacent to sub-Site 2(a).

¹⁰¹ Natural England, (2026), Natural England Open Data Geoportal. Available at: <https://naturalengland-defra.opendata.arcgis.com/>

Defra Mapped Background Concentrations

- 5.5.14 Estimates of current and future year background pollutant concentrations in the UK are available on the Defra UK-Air website¹⁰². The background estimates, which are a combination of measured and modelled data, are available for each 1 km grid square throughout the UK for a reference year of 2021 which is the basis for future year estimates up to 2040. The average background concentrations for the current year (2026) for NO₂, PM₁₀ and PM_{2.5} for the grid squares covering the Site are presented in Table 5-9.
- 5.5.15 The data indicate that all modelled backgrounds are below the relevant AQS⁹⁴ objectives. As such, short-term construction activities are highly unlikely to lead to exceedances of the relevant AQS objectives for NO₂, PM₁₀ or PM_{2.5}, and the associated contribution to PM_{2.5} concentrations is also expected to remain well below the interim annual mean target.

Table 5-9 Defra Mapped Background NO₂, PM₁₀ and PM_{2.5} Concentrations, (µg/m³)

Year		NO2	PM10	PM2.5
2026 Baseline	Average	4.0	11.2	6.1
	Minimum	3.7	10.2	5.9
	Maximum	5.3	12.7	7.5
2029 Construction	Average	3.6	10.9	5.9
	Minimum	3.4	9.9	5.7
	Maximum	5.0	12.5	7.3
2031 Opening year	Average	3.4	10.8	5.8
	Minimum	3.2	9.8	5.5
	Maximum	4.7	12.3	7.2

- 5.5.16 Air quality constraints are shown in Volume II, Figure 5.5.1. The air quality study area is shown in Volume II, Figure 5.5.2.

¹⁰² Defra, (2021) Background mapping data for local authorities. Available at: <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021>

Likely Significant Effects and Proposed Mitigation

Construction

- 5.5.17 During the construction phase, there could be increased emissions of dust from dust-raising activities within the Site. To mitigate and minimise these emissions, a construction dust risk assessment will be undertaken following the IAQM Construction Dust Guidance⁹⁶. This will inform the specification of appropriate mitigation commensurate with the determined dust risk and in accordance with IAQM Construction Dust Guidance. The dust assessment and mitigation would be documented in a Dust Management Plan for the Scheme, to be submitted with the DCO submission within the oCEMP. Application of identified mitigation (secured in the detailed CEMP as a Requirement of the DCO) will ensure adverse effects will not occur, and any residual dust impacts would be 'not significant'. Construction dust can be scoped out of the EIA.
- 5.5.18 Detail on construction traffic flows for the Scheme are not yet sufficiently developed, however it is unlikely that construction traffic flows on any single road link will exceed IAQM screening criteria⁹⁷ for assessment, and thus further consideration in this respect is scoped out of EIA. If construction traffic flow data within the TA should indicate otherwise, flow data can be screened against relevant IAQM criteria and any requirement for assessment revisited and methodologies agreed with relevant stakeholders. Construction transport logistics will be managed through the implementation of the oCTMP which will be submitted as part of the DCO application. This will include recommendations that, where practicable, construction traffic avoids routes through villages and AQMAs. Construction vehicle routes could include routing via the A435, which passes through Studley AQMA. The CTMP will seek to ensure that this route is avoided.
- 5.5.19 At this early stage of Scheme development, there is limited detail on type and number of construction plant and non-road mobile machinery (NRMM). However, emissions would be controlled through the application of the following best practice measures:
- Application of Best Practicable Means (BPM) as described in Section 79(9) of the C (EPA) 1990 to minimise fumes or emissions which may impact upon air quality.
 - Use of type approved plant (relevant emissions standards are set in the NRMM regulations 2018)⁹², low or zero emission NRMM (electric or battery powered in preference to fossil fuelled plant) would be encouraged.

- Plant will be operated with adherence to relevant process guidance notes.
- Where appropriate, plant will operate under the Environmental Permitting (England and Wales) Regulations 2016/43 (as amended).

5.5.20 The construction will be carried out over the course of two years, anticipated to be from 2029 to 2031. Any impacts on air pollution at nearby receptors will be short term and temporary.

Operation

5.5.21 Operational traffic will comprise maintenance visits, limited to a few cars, van or other LGV vehicles per week. Periods where equipment is being replaced will include HGV movements but will be limited to a few periods over the operational life of the Scheme and are very unlikely to exceed IAQM screening criteria⁹⁷ as they will be less than the construction phase.

5.5.22 The Scheme provides a clean and renewable source of energy in its day to day running, which does not contain any sources of air quality emissions, ancillary combustion process or combustion-based power generation.

5.5.23 The BESS will be designed, built and operated in accordance with relevant Fire Regulations and Health and Safety Executive guidance, to be detailed in an oBSMP. Due to the chemical nature of the BESS, there is the potential for local air quality to be negatively impacted in the event of a BESS fire. The DCO submission will be accompanied by a fire safety assessment examining the area of potential air quality effects in the event of a fire at the BESS. This will include an air quality assessment of potential emissions from a BESS fire using an appropriate dispersion model. Due to the low likelihood of this occurring there would not be any significant effects and this can be scoped out of the EIA.

Decommissioning

5.5.24 Upon decommissioning of the Scheme, it is likely that the impacts as a worst-case will be similar to those experienced during the construction phase. Therefore, the same or similar mitigation measures should be implemented during the decommissioning phase. Exact mitigation measures will be confirmed in advance of the decommissioning phase, via the implementation of an oDEMP, to ensure impacts on air quality are not significant. The oDEMP will include measures to reduce exposure to and emissions of PM₁₀ and PM_{2.5}.

Summary

- 5.5.25 A summary of the potential air quality effects and the justification for scoping these out of the ES is illustrated in Table 5-10.

Table 5-10 Potential Air Quality Effects and Justification for scoping out

Potential Effect	Scoping Decision and Justification
Construction	
Construction Dust	Scoped Out - A construction dust risk assessment will be undertaken to determine the potential for dust and particulate emissions during the construction phase and to identify appropriate mitigation measures using the IAQM Construction Dust Guidance. This will be secured by the oCEMP.
Temporary construction road traffic emissions	Scoped Out - Construction traffic will be managed through a CTMP, which will set out measures to minimise construction vehicle related impacts e.g. avoiding villages and AQMAs.
Exhaust emissions from NRRM	Scoped out - At this early stage of Scheme development, there is limited detail on type and number of construction plant and non-road mobile machinery (NRRM). However, emissions would be controlled through application of best practice measures secured via the oCEMP.
Operation	
Operational Traffic	Scoped out - Operational traffic is expected to be limited to occasional maintenance visits, and the scale of these movements is sufficiently low that no further air quality assessment is required in this respect. Air quality effects in decommissioning of the Scheme will be similar to those in construction and will be managed through an oDEMP.
Combustion Plant	Scoped out - The Scheme provides a clean and renewable source of energy in its day to day running, which does not contain any sources of air quality emissions, ancillary combustion process or combustion-based power generation.
Emissions from BESS Fire Event	Scoped out - Operational emissions associated with a potential BESS fire will be dealt with in the oBSMP. It is unlikely that this effect will arise.
Decommissioning	
Identified effects area as per construction	Scoped out – Similar effects to construction.

- 5.5.26 With implementation of the proposed management plans, the impact on air quality at nearby receptors is anticipated to be negligible. The mitigation strategy is expected to effectively control emissions and minimise potential exposure to airborne pollutants during the construction, operational and decommissioning phases. On this basis, significant effects on air quality are not predicted, and it is considered appropriate to scope assessment of air quality effects out of the ES.

5.6 Climate Vulnerability

Overview

- 5.6.1 Rising concentrations of carbon dioxide (CO₂) and other GHGs in the atmosphere mean that changes to the earth's climate are already being observed and that it is inevitable that our climate will continue to change into the future.
- 5.6.2 Climate change is expected to have significant implications for infrastructure assets, particularly those with long operational lifetimes. This makes these assets sensitive, not only to extreme weather in the existing climate at the time of their construction, but also to changes in climate over the decades of their operation.
- 5.6.3 Climate change impacts are considered separately in two different parts of this report:
- **Chapter 9: Climate Change** - Considers the effects of the Scheme on climate, i.e. the amount of GHGs emissions released during both construction and operation; and
 - **Chapter 5, Section 5.6 (this section): Climate Vulnerability** - Considers the effect of our changing climate on the construction, operation and decommissioning of the Scheme, for example considering impacts associated with increasingly regular and severe extreme weather, warmer, wetter winters and hotter, drier summers.
- 5.6.4 Climate vulnerability assessments are split into two parts; a Climate Change Risk (CCR) assessment and an in-combination Climate Change Impacts (ICCI) assessment. The objective of each of these climate vulnerability assessments is described below:
- **CCR assessment:** examines the resilience of the Scheme itself, over its design lifetime, to projected future changes to the climate, for example the durability of materials used; and
 - **ICCI assessment:** examines how the effects of the Scheme that have been identified by other chapters in this ES could be affected by climate change, for example, how a potential impact identified in

the Soils and Agriculture chapter (chapter 8) could be intensified in the future by projected changes in rainfall.

- 5.6.5 In accordance with ISEP Guidance¹⁰³, the study area for the climate vulnerability assessment comprises the temporary and permanent land take of the Scheme (temporary meaning the area required only during construction works) and all potential environmental receptors that could be affected by the Scheme.
- 5.6.6 The temporal scope of this Scoping assessment, i.e. the life span of the Scheme, is taken to be 60 years.
- 5.6.7 This scoping assessment considers potential climate vulnerability impacts on the following receptors:
- Construction activities and workers;
 - Solar panels and mounting equipment;
 - BESS;
 - CRCs;
 - Highways accesses;
 - Substations and other grid infrastructure;
 - Users (Site workers); and
 - Environmental receptors potentially affected by the Scheme.

Relevant Legislation, Policy and Guidance

- 5.6.8 The following legislation and policy documents have been considered in this scoping assessment:
- Legislation:
 - Paris Agreement 2016¹⁰⁴;
 - Infrastructure Planning (EIA) Regulations 2017²;
 - Climate Change Act 2008 and Climate Change Act 2008 (2050 Target Amendment) Order 2019¹⁰⁵;
 - Policy:
 - NPS EN-1¹³
 - NPS EN-3¹⁴

¹⁰³ ISEP (2020) Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation. Available at: <https://www.iema.net/media/mabhqino/iema-eia-climate-change-resilience-june-2020.pdf>

¹⁰⁴ UNFCCC (2016). Conference of the Parties, Report of the Conference of the Parties on its twenty-first session, held in Paris from 30 November to 13 December 2015. FCCC/CP/2015/10 (online). Available at: <https://unfccc.int/sites/default/files/resource/docs/2015/cop21/eng/10a01.pdf>

¹⁰⁵ The Climate Change Act 2008 (2050 Target Amendment) Order 2019. Available at: <https://www.legislation.gov.uk/ukdsi/2019/9780111187654>

- NPPF 2024¹⁸
- Worcestershire Climate Change Strategy 2012 to 2020¹⁰⁶;
- WaCC climate change adaptation assessment and action plan¹⁰⁷;
- WyDC Intelligently Green Plan¹⁰⁸; and
- SoADC Supplementary Planning Document Part V Climate Change Adaptation and Mitigation⁸².

5.6.9 The principal guidance followed by this section is the ISEP '*EIA Guide to Climate Change Resilience and Adaption*'¹⁰². This provides a framework for the effective consideration of climate change resilience and adaptation in the EIA process in line with The Infrastructure Planning (EIA) Regulations (2017).

5.6.10 Other guidance that has been referenced to ensure best practice has been followed is listed below:

- European Commission Guidance on Integrating Climate Change and Biodiversity into EIA (2013)¹⁰⁹;
- European Commission EIA of Projects: Guidance on the preparation of the EIA Report¹¹⁰; and
- ISEP EIA Guide to: Climate Change Resilience and Adaptation (2020)¹⁰².

Baseline

5.6.11 Climate is defined as the typical weather conditions experienced in a place over a period of time, conventionally expressed as average weather over a 30-year period.

5.6.12 The climate vulnerability baseline comprises two parts:

- Current climatic conditions; and
- Future climate projections.

¹⁰⁶ Worcestershire County Council (2026) County Energy and Climate Strategies. Available at: <https://www.worcestershire.gov.uk/council-services/environment/sustainability/county-energy-and-climate-strategies>

¹⁰⁷ Sustainable Warwickshire (2026) Warwickshire's climate change adaptation assessment and action plan. Available at: <https://www.sustainablewarwickshire.co.uk/climate-change-adaptation-2/warwickshire-climate-change-adaptation-assessment-action-plan>

¹⁰⁸ Wychavon District Council (2026) Community and Living Intelligently Green Plan. Available at: <https://www.wychavon.gov.uk/community-and-living/intelligently-green>

¹⁰⁹ European Commission (2013). Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment. Available at: <https://op.europa.eu/en/publication-detail/-/publication/3ed0e578-7f24-4073-81c9-f279c6d4b3cf>

¹¹⁰ European Commission (2017). Environmental impact assessment of projects . Available at: <https://op.europa.eu/en/publication-detail/-/publication/2b399830-cb4b-11e7-a5d5-01aa75ed71a1>

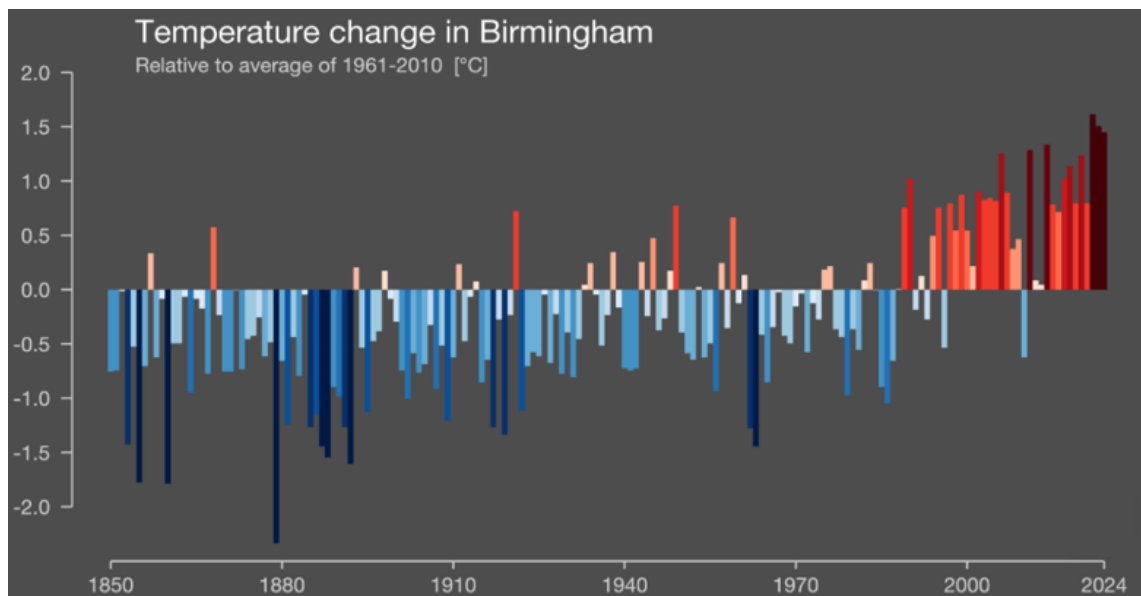
5.6.13 A summary of the two aspects of the climate vulnerability baseline described above (current and future climate) is presented in the following sub sections.

Current climate

5.6.14 The study area has a temperate climate (moderate temperatures, four distinct seasons and is not extremely hot or cold). Day-to-day weather is variable but annually it can be characterised as having mild summers and cool damp winters.

5.6.15 Climate change is impacting the study area now, and the pace of change is accelerating. The region has experienced a warming trend and shifting rainfall patterns over the last 50 years. Key trends in historical meteorological data recorded in Birmingham (~25 km from the Site) are summarised below (and illustrated in Insert 5-3):

- All of the top 3 warmest years on record have occurred since 2020; and
- Seasonal rainfall has also changed significantly, with decreasing summer rainfall and increasing winter rainfall.



Insert 5-3 Temperature change in Birmingham (~25km north of the Scheme), 1850-2024

Projected climate

- 5.6.16 Key future changes to the climate in the study area by 2100 reported by UKCP18 (scenario RCP8.5¹¹¹) are summarised below:
- Wetter in winter and drier in summer. Winters are projected to become wetter, in terms of both the total amount of rainfall and the number of wet days. The intensity of rainfall on the wettest days is also expected to increase;
 - Warmer, as average temperatures will increase across all seasons. Linked to this, there will be reduced frost and snowfall; and
 - Weather will become more variable and unpredictable, with extreme weather events, such as windstorms or droughts, becoming more frequent.

Likely Significant Effects and Proposed Mitigation

Construction

- 5.6.17 The climate of the study area has already changed from its natural state, as a result of climate change. However, the Scheme's construction is not expected to be so far in the future that the climate will notably change further prior to construction. The construction of the Scheme is therefore not expected to be affected by slow onset changes to the study areas average baseline climate conditions.
- 5.6.18 If construction coincides with extreme weather event(s) such as drought or storms there may potentially be construction impacts. A severe weather plan will be included within the oCEMP that sets out how weather forecasts would be monitored and what actions would be taken in response to adverse weather.
- 5.6.19 All climate vulnerability impacts during construction are scoped out of further assessment. They would instead be managed through a CEMP and/or addressed as required by the relevant topics within the ES. Appropriate construction controls will therefore be identified by other topics to deal with any potential construction climate vulnerabilities, e.g. the Water Environment section (Section 5.7) considers flood risk during construction with consideration of extreme weather.

¹¹¹ Met Office (2018) UKCP18 Guidance: Representative Concentration Pathways. Available at: <https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-guidance---representative-concentration-pathways.pdf>

Operation

- 5.6.20 Changes to the climate could affect the Scheme, for example damaging assets that are exposed to climate hazards (such as flooding, drought, or storms) or changing the way the development operates (e.g. making it perform less well).
- 5.6.21 Embedded mitigation measures are being incorporated into the Scheme design to mitigate the potential impacts of climate change on the Scheme and the in-combination impacts on nearby environmental receptors including:
- Selecting appropriate species for use in the planting and green infrastructure proposals across the Scheme;
 - Protecting against increased soil erosion and degradation due to extreme weather and increased winter precipitation by covering exposed soil with grass;
 - Adequate panel spacing and ventilation to keep panels cool in extreme hot weather;
 - Critical infrastructure vulnerable to the effects of flooding will be raised and located outside of Flood Zones 2 and 3;
 - The height of the lower part of the solar PV panels will be above expected flood levels from extreme weather;
 - Wind-loading design will be based on future climate allowances, not just historic data;
 - SuDS will manage the quality and quantity of Site runoff and will be sized for future climate conditions;
 - The condition and integrity of assets would be regularly assessed;
 - An oBSMP will be submitted as part of the DCO application, which would detail relevant mitigation measures pertaining to the BESS; and
 - Provision of an ERP, to be secured by the detailed Battery Safety Management Plan, will include on-site fire prevention, suppression, and evacuation procedures.

Summary

Construction

- 5.6.22 A summary of the potential climate vulnerability impacts and the justification for scoping these out of the ES during construction is illustrated in Table 5-11.

**Table 5-11 Potential construction impacts on Climate Vulnerability
scoped out**

Potential Effect	Scoping decision and Justification
Construction equipment	
Extreme weather could cause construction equipment to overheat and/or delay construction activities.	Scoped out – Risk will be managed by the CEMP.
Supply chain disruption	Scoped out – Outside of the control of the Scheme. Site access will be maintained during extreme weather to facilitate deliveries; see flood risk below.
Construction workers	
Reduced productivity during hot weather and extended periods of increased heat have the potential to increase risks to human health and wellbeing including discomfort, dehydration, sunburn, heat stress, stroke and/or exhaustion.	Scoped out – Risk will be managed by the CEMP which will ensure monitoring of weather forecasts and implement adverse hot weather procedures when required, such as communicating risks to staff (advising on suitable PPE, sun hats, sunscreen and loose light clothing) and providing breaks, shade and hydration. In extreme situations a change in working hours/shift may be implemented.
Extreme weather could create unsafe working conditions that delay the construction programme (e.g. stopping or slowing construction activities/processes).	Scoped out - Risk will be managed by the CEMP.
Fire risk, which poses a direct risk to worker health and safety.	Scoped out – An ERP will be developed within the detailed CEMP which will establish procedures to be followed in the event of a wildfire. These will include on-site fire prevention, suppression, and evacuation procedures.
Construction dust - An increase in dust and soil erosion are likely to have implications on air quality and workforce health.	Scoped out – This impact is considered by Chapter 5, Section 5 alongside Air Quality and will be mitigated by best practice measures in the CEMP.

Potential Effect	Scoping decision and Justification
Construction Site access	
Flood risk - Extended periods of increased rainfall have the potential to cause pluvial flood risk which could hamper access to Site, particularly in high traffic areas where the operating and manoeuvring of heavy plant in wet conditions causes ground disturbance and access tracks to become un navigable. This has the potential to delay construction works.	Scoped out. Flood risk impacts, with consideration of extreme weather and climate change, are covered by the Water Environment section of this Chapter (Section 5.7) and are therefore scoped out of further assessment in the climate vulnerability assessment.

Operation

- 5.6.23 The scoping of potential operational impacts that could affect the Scheme are presented in Table 5-12.

Table 5-12 Potential operational impacts on assets scoped out (CCR assessment)

Potential Effect	Scoping decision and Justification
Performance (asset efficiency)	
Reduced cell efficiency and energy output due to higher temperatures.	Scoped out – Expected temperature increases unlikely to significantly reduce energy output (PV modules typically lose ~0.3–0.5% efficiency per °C above 25°C).
Climate change may in the future increase the agricultural value of the land reducing the Scheme's commercial viability.	Scoped out – This will not materially affect the Scheme. The Scheme is temporary and will not take land permanently out of agriculture. Opportunities to continue agricultural activity on the land will be explored.
More sunny days in the future per year could increase energy output.	Scoped out – This would be a benefit but unlikely to be significant.
More soiling - dry conditions mean more dust, pollen and bird droppings accumulation, reducing output.	Scoped out – Impact would be negligible, performance can be monitored and panels are easily accessible for cleaning which will form part of the standard maintenance of the Scheme. Rain, which naturally cleans the panels, is still likely to be regular in winter.
Increased heat could reduce the capacity of transmission lines.	Scoped out – Impact expected to be minor as cables will be primarily underground and is not limited to the Scheme.
Increased losses within substation and transformers.	Scoped out – Impact expected to be minor and not limited to the Scheme, and will be considered and mitigated during design.
Reduced water availability for cleaning solar PV panels.	Scoped out – Impact expected to be negligible; panel cleaning will be infrequent.
Physical damage to assets	
Increased degradation of solar PVs due to increased temperatures.	Scoped out – This has been considered within the economic basis of the Scheme design. An allowance for the replacement of panels during the operation of the

Potential Effect	Scoping decision and Justification
	Scheme will limit the impact of any degradation.
Hotter summers could damage assets (e.g. materials and structures), for example by causing rutting, over expansion and/or buckling which would increase maintenance requirements.	Scoped out – Impact expected to be negligible and assets will be resilient by design.
Flooding – extended periods of rainfall could lead to flooding events that damage assets	Scoped out – The Water Environment section (5.7) will assess flood risk impacts with consideration of climate change impacts. The design includes an allowance for climate change that exceeds the projected change in precipitation.
Drier summers could cause soil instability through intensifying and extending soil moisture deficits, for example by reducing groundwater levels and earth pressures. This could adversely affect structures and foundations.	Scoped out – The substation associated with the Scheme will have foundations designed to meet the relevant standards appropriate for the ground conditions.
Damage to assets during more regular and potentially more intense windstorms, for example as a result of: ▪ Structural loading on panels and mounting systems. ▪ Component damage or misalignment / disconnection. ▪ Increased insurance and maintenance costs.	Scoped out – Mitigated by design. System will be designed to withstand storm winds, for example: ▪ Key components will be covered to reduce their exposure. ▪ Wind-loading design based on future climate allowances, not just historic averages. ▪ Panel racking system will have sufficiently deep foundations or be anchored to the ground by concrete anchors. ▪ Systems will be closely monitored so any loose electrical connections can be identified and rectified quickly.
An increase in the magnitude and frequency of wildfire occurrences may result in thermal runaway associated with the BESS.	Scoped out – An oBSMP will address and mitigate this risk.
Hotter temperatures could dry out soils, which could become more easily eroded by wind and rain. This may	Scoped out – Drainage design will account for expected levels of

Potential Effect	Scoping decision and Justification
cause sedimentation within the Scheme's drainage infrastructure, reducing its drainage capacity, therefore increasing the risk of flooding.	sedimentation, for example through inclusion of sediment forebays.
Falling debris (such as tree branches or debris from gardens (such as trampolines) during more regular windstorms and potentially stronger gusts could damage the Scheme's assets.	Scoped out – The majority of the solar installation will be away from residential properties which pose the highest risk as a debris source. Panels will also be sited away from trees to reduce shading effects, and trees within the Site will be actively maintained to reduce risk from falling branches.
Damaged landscaping: drier summers could damage the Scheme's landscaping.	Scoped out – The landscaping design will be drought resilient and will be able to recover after drought.
Extreme weather impacts on electrical equipment: more frequent extreme weather events could occur such as lightning strikes, humidity increases and hot temperatures, all of which could cause damage and/or thermal overloading of electrical circuits.	Scoped out – The design will mitigate impacts associated with lightning strikes and more regular maintenance cycles can address any degradation in asset performance.
Milder winters could reduce freeze thaw erosion which can damage underground assets. This may reduce maintenance requirements and increase asset design life.	Scoped out – This would be a benefit but unlikely to be significant.

- 5.6.24 Projected changes to the study area's climate could also impact and intensify the effects considered by the other topics in this scoping report resulting in additional or worse effects than considered in the other topic assessments during operation. This has been considered and scoped out as illustrated in Table 5-13. Generally, all potential effects of climate change will be factored into the relevant individual topic assessments where relevant.

Table 5-13 Potential operational impacts on environmental receptors scoped out (ICCI Assessment)

Receptor and impact description	Scoping decision
Soil resources	
More intense summer rainfall and wetter winters could increase soil erosion.	Scoped out – Replanting of all soil surfaces during operation will mitigate effects of increased precipitation on bare ground.
Precipitation changes could increase flood risk from rivers and ponds	Scoped out - Addressed in Chapter 5, Section 5.7 relating to Water Environment.

Decommissioning

- 5.6.25 During decommissioning, the oDEMP will include any required necessary measures to adjust to the impacts of climate change, such as temperature increases. It should also be noted that as infrastructure will be being removed during decommissioning, considerations regarding the resilience of infrastructure to climate change are of limited importance.

5.7 Water Environment

Overview

- 5.7.1 This section provides the environmental scoping assessment of the Scheme for the water environment, which includes surface water bodies (water quality, water quantity, and hydromorphology), groundwater (water quality and water quantity), and flood risk. The assessment considers effects that may arise from the construction, operation and decommissioning of the Scheme.
- 5.7.2 Additional effects associated with ecology are provided in Chapter 6: Ecology and Biodiversity, whilst the impacts to groundwater quality as a result of contaminated ground can be seen in Chapter 7: Ground Conditions and Contamination and Chapter 8: Soils and Agriculture.

Relevant Legislation, Policy and Guidance

- Legislation:
 - Water Resources Act 1991¹¹²

¹¹² Water Resources Act 1991. Available at: <https://www.legislation.gov.uk/ukpga/1991/57/contents>

- Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009¹¹³
- Land Drainage Act 1991 (as amended 1994)¹¹⁴
- Flood and Water Management Act 2010¹¹⁵
- Water Act 2003 as amended 2014¹¹⁶
- Water Supply Regulations 2016 (as amended 2018)¹¹⁷
- The Water Environment (Water Framework Directive (WFD)) (England and Wales) Regulations 2017¹¹⁸
- The Water Resources EIA (England and Wales) (Amendment) Regulations 2017¹¹⁹
- The Environmental Permitting (England and Wales) Regulations 2016⁴³
- WFD (Standards and Classification) Directions (England and Wales) 2015¹²⁰
- Flood Risk Regulations 2009¹²¹
- Water Industry Act 1991¹²²
- Environment Protection Act 1990³⁸
- National Policy, Standards and Guidance
 - Overarching NPS for Energy (EN11EN-1, 2023)¹³
 - NPS for Renewable Energy Infrastructure (EN3)¹⁴
 - NPS for Electricity Networks Infrastructure (EN5)¹⁵
 - NPPF (2025)¹⁸
 - National Standards for SuDS 2025¹²³

¹¹³ Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009 (SI 2009/3104). Available at: <https://www.legislation.gov.uk/uksi/2009/3104/contents>

¹¹⁴ Land Drainage Act 1991. Available at: <https://www.legislation.gov.uk/ukpga/1991/59/contents>

¹¹⁵ UK Government (2010) Flood and Water Management Act 2010. Available at: <https://www.legislation.gov.uk/ukpga/2010/29/contents>

¹¹⁶ Water Act 2014. Available at: <https://www.legislation.gov.uk/ukpga/2014/21/contents>

¹¹⁷ The Water Supply (Water Quality) Regulations 2016. Available at: <https://www.legislation.gov.uk/uksi/2016/614/contents>

¹¹⁸ The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. Available at: <https://www.legislation.gov.uk/uksi/2017/407/contents>

¹¹⁹ The Water Resources (Environmental Impact Assessment) (England and Wales) (Amendment) Regulations 2017. Available at: <https://www.legislation.gov.uk/uksi/2017/583/contents>

¹²⁰ UK Government (2015) The Water Environment (Water Framework Directive) (England and Wales) 2015. Available at:

https://www.legislation.gov.uk/uksi/2015/1623/pdfs/ukiod_20151623_en_auto.pdf

¹²¹ The Flood Risk Regulations 2009. Available at:

<https://www.legislation.gov.uk/uksi/2009/3042/contents/made?view=plain>

¹²² Water Industry Act 1991. Available at: <https://www.legislation.gov.uk/ukpga/1991/56/contents>

¹²³ Department for Environment, Food & Rural Affairs (2025) National standards for sustainable drainage systems (SuDS). Available at: <https://www.gov.uk/government/publications/national-standards-for-sustainable-drainage-systems/national-standards-for-sustainable-drainage-systems-suds>

- PINS – NSIPs: Advice on the WFD (2024)¹²⁴
- The Environment Agency's Approach to Groundwater Protection (2018, v1.2)¹²⁵
- The SuDS Manual (CIRIA C753, 2015)¹²⁶
- Environmental Good Practice on Site Guide (CIRIA C811, 2023)¹²⁷
- Pollution Prevention Guidelines (PPGs) (withdrawn)¹²⁸
- DMRB LA113¹²⁹ & LA104³⁴ (2020)³⁴
- Regional and Local Policy and Guidance
 - WoCC Surface Water Management Plan 2018¹³⁰
 - WoCC Local Flood Risk Management Strategy 2016¹³¹
 - WoCC: 2013 Joint SFRA (with Stratford, North Warwickshire, Rugby)¹³²
 - WCC: Flood Risk & Development Guidance / Surface Water Management Plan¹³³

¹²⁴ Planning Inspectorate (2024) Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-the-water-framework-directive>

¹²⁵ Environment Agency (2018) The Environment Agency's approach to groundwater protection. Available at: <https://assets.publishing.service.gov.uk/media/5ab38864e5274a3dc898e29b/Environment-Agency-approach-to-groundwater-protection.pdf>

¹²⁶ CIRIA (2015) The SuDS Manual (c753). London: Construction Industry Research and Information Association. Available at: https://www.ciria.org/CIRIA/CIRIA/Item_Detail.aspx?iProductCode=C753

¹²⁷ CIRIA (2023) Environmental Good Practice on Site (C811). London: Construction Industry Research and Information Association. Available at: https://www.ciria.org/ci/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=C811D

¹²⁸ Environment Agency, Scottish Environment Protection Agency & Northern Ireland Environment Agency (2013) Pollution Prevention Guidelines (PPGs). Available at: https://assets.publishing.service.gov.uk/media/5a8056ade5274a2e8ab4f937/LIT_1404.pdf

¹²⁹ National Highways (2020) DMRB LA 113: Road Drainage and the Water Environment. Design Manual for Roads and Bridges. Available at: <https://www.standardsforhighways.co.uk>

¹³⁰ Worcestershire County Council (2018) Worcestershire Surface Water Management Plan. Available at: https://www.worcestershire.gov.uk/sites/default/files/2022-10/surface_water_management_plan.pdf

¹³¹ Worcestershire County Council (2016) Local Flood Risk Management Strategy 2015-2021. Available at: https://www.worcestershire.gov.uk/sites/default/files/2022-10/final_published_lfrms_2016.pdf

¹³² URS Infrastructure & Environment UK Ltd (2013) Level 1 Strategic Flood Risk Assessment: Stratford-on-Avon District Council, North Warwickshire Borough Council, Rugby Borough Council and Warwickshire County Council. Final Report, September 2013. Available at: <https://docslib.org/doc/8718050/stratford-on-avon-dc-warwickshire-cc-north-warwickshire-bc-rugby-bc-level-1-sfra-report>

¹³³ Worcestershire County Council (2018) Surface Water Management Plan. Available at: https://www.worcestershire.gov.uk/sites/default/files/2022-10/surface_water_management_plan.pdf

- South Worcestershire Councils Level 1 SFRA (2019)¹³⁴
- SoADC: Joint SFRA (2013) & Level 1 SFRA (2022)¹³⁵
- WyDC: 2013 Joint SFRA; 2022 Level 1 SFRA; Water & Flood Risk Technical Evidence page¹³¹
- ReBC Local Plan 2017: Bromsgrove & Redditch Level 1 SFRA (2009)¹³⁶
- ReBC Local Plan (2011 – 2030)²³

Baseline

Study Area

- 5.7.3 The study area for surface water quality, hydromorphology and groundwater includes as a minimum, features of the water environment within 1 km of the Site (which includes the CRC Search Area and PoC). This distance was selected through professional judgement and through the understanding of watercourse connectivity which considers 1 km to be an appropriate distance for any potential impacts to be sufficiently reduced (for example, dilution of pollutants).
- 5.7.4 The study area for flood risk is defined by the Site and also considers any off-site features within a 1 km buffer. This is thought to be an appropriate distance for any potential impacts to be sufficiently reduced. Off-site impacts will be assessed further upstream and downstream if required based on professional judgement.
- 5.7.5 At this stage, a high-level, desk-based assessment has been undertaken using publicly available spatial data under the Open Government Licence and from open sources including the Environment Agency. Data were accessed and downloaded in January 2026. The list of sources used is as follows:
- Environment Agency Catchment Data Explorer¹³⁷;

¹³⁴ JBA Consulting (2019) South Worcestershire Councils Level 1 Strategic Flood Risk Assessment. Final Report. Available at:

<https://www.swdevelopmentplan.org/component/fileman/file/Documents/South%20Worcestershire%20Development%20Plan/SWDP%20Review/Evidence%20Base/SFRA/SFRA-Level-1-Final-Report-South-Worcestershire-Councils.pdf?routed=1&container=fileman-files>

¹³⁵ Stratford-on-Avon District Council (2022) Level 1 Strategic Flood Risk Assessment for Stratford-on-Avon District. Available at: <https://www.stratford.gov.uk/planning-building/water-and-flood-risk.cfm>

¹³⁶ Royal Haskoning (2009) Bromsgrove District and Redditch Borough Strategic Flood Risk Assessment – Level 1 Report. Final Report, January 2009. Available at:

https://www.worcestershire.gov.uk/sites/default/files/2022-10/bromsgrove_district_council_and_redditch_borough_council_sfra_level_1.pdf

¹³⁷ Environment Agency (2025) Catchment Data Explorer. Available at: <https://environment.data.gov.uk/catchment-planning/>

- Online Ordnance Survey (OS) maps¹³⁸;
- Defra's MAGIC maps¹³⁹;
- British Geological Survey (BGS) Geology Map Viewer¹⁴⁰;
- BGS GeoIndex (onshore)¹⁴¹;
- Envirocheck Groundsure Location Intelligence^{67,68,69,70};
- Environment Agency Public Registers website – Environmental Permitting Regulations – Discharges to water and groundwater¹⁴²;
- Environment Agency – Check your long term flood risk¹⁴³;
- Environment Agency Flood Map for Planning¹⁴⁴;
- Environment Agency Historic Flood Map¹⁴⁵;
- Environment Agency Recorded Flood Outlines¹⁴⁶;
- LiDAR Composite DTM (2022) Data¹⁴⁷;
- Land Information System – Soilscape soil types viewer¹⁴⁸;
- Environment Agency FRAs: Client change allowances¹⁴⁹;
- Hydrology Data Explorer¹⁵⁰; and
- Environment Agency Statutory Main Rivers Map¹⁵¹.

¹³⁸ Ordnance Survey (2025) Open Data Downloads. Available at:

<https://osdatahub.os.uk/data/downloads/open>

¹³⁹ Natural England (2026) MAGIC: Multi-Agency Geographic Information for the Countryside.

Available at: <https://magic.defra.gov.uk/home.htm>

¹⁴⁰ British Geological Survey (2026) BGS Geology Viewer. Available at:

https://geologyviewer.bgs.ac.uk/?_ga=2.98919197.222224049.1769759700-276765387.1769759700

¹⁴¹ British Geological Survey (2026) GeoIndex. Available at:

https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.248068295.1977737646.1770292455-2108948675.1770292455

¹⁴² Environment Agency (2026) Water Discharge Consents Public Register. Available At:

<https://environment.data.gov.uk/public-register/view/search-water-discharge-consents>

¹⁴³ Environment Agency (2026) Surface water map Available at: <https://check-long-term-flood-risk.service.gov.uk/map>

¹⁴⁴ Environment Agency (2026) Flood Map for Planning. Available at: <https://flood-map-for-planning.service.gov.uk/map>

¹⁴⁵ Environment Agency (2026) Historic Flood Map. Available at:

<https://www.data.gov.uk/dataset/76292bec-7d8b-43e8-9c98-02734fd89c81/historic-flood-map1>

¹⁴⁶ Environment Agency (2026) Recorded Flood Outlines. Available at:

<https://www.data.gov.uk/dataset/16e32c53-35a6-4d54-a111-ca09031eaaaf/recorded-flood-outlines1>

¹⁴⁷ Department for Environment, Food & Rural Affairs (2026) Defra Data Services Platform – Survey Portal. Available at: <https://environment.data.gov.uk/survey>

¹⁴⁸ Cranfield University (2020) Soilscape Viewer. Available at: <https://www.landis.org.uk/soilscape/>

¹⁴⁹ Environment Agency (2022) Flood risk assessments: climate change allowances. Available at: <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

¹⁵⁰ Environment Agency (2026) Hydrology Data Explorer. Available at:

<https://environment.data.gov.uk/hydrology/explore>

¹⁵¹ Environment Agency (2025) Statutory Main River Map. Available at:

<https://www.data.gov.uk/dataset/4ae8ba46-f9a4-47d0-8d93-0f93eb494540/statutory-main-river-map>

Surface Water (quality, quantity and hydromorphology)

5.7.6 The study area sits within the Severn River Basin District and falls within six WFD river water body catchments. The WFD river water bodies are listed below, with their relation to the study area, as well as the operational catchment they sit within:

- Avon - Midlands West Operational Catchment:
 - Littleton Brook (Bk) – Source to confluence (conf) Bretforton Bk Water Body
 - The catchment sits in the southwest of the study area with only a small portion overlapping. The WFD river water body flows from south to north in a small section of the study area.
 - Piddle Bk – Source to conf Whitsun Bk Water Body
 - The catchment is located in the northwest, with the river water body running mostly east to west across the study area.
 - Bow Bk – Source to Lett's Mill Water Body
 - The catchment is located in the north of the study area. The WFD river water body runs west to east across a small section the study area.
- Avon Rural Rivers and Lakes Operational Catchment:
 - Avon – Tramway Bridge (Br) Stratford to Workman Br Evesham Water Body
 - The study area is split by the river water body, which flows from Stratford-upon-Avon to Evesham, in a northeast to southwest direction.
 - Noleham Bk – Source to conf River (R)Avon Water Body
 - The catchment is located in the southeast of the study area and joins the River Avon from the south.
- Avon Urban Rivers and Lakes Operational Catchment:
 - Arrow – conf R Alne to conf R Avon Water Body
 - The catchment sits within the centre of the study area and runs south from Alcester to join Avon – Tramway Br Stratford to Workman Br Evesham Water Body.

5.7.7 Volume II, Figure 5.7.1 shows the 1 km study area in relation to the WFD river water body catchments.

- 5.7.8 These WFD designated reaches, defined as the main reach within each water body catchment (as shown in blue in Volume II, Figure 5.7.1) are all deemed Main Rivers, which fall under the legal powers of the Environment Agency¹⁵⁰. These six WFD designated reaches have been called by their watercourse (Main River) titles and been given a unique watercourse ID, separate to the water body catchment ID¹⁷⁶. This can be seen in Volume III, Appendix A5.2.
- 5.7.9 In addition to the six Main Rivers, 106 Ordinary Watercourses have been identified through Ordnance Survey and background mapping within the 1 km study area. Ordinary Watercourses are defined as “every river, stream, ditch, drain, cut, dyke, sluice, sewer (other than a public sewer) and passage through which water flows and which does not form part of a Main River”¹¹². Ordinary Watercourses come under the remit of Internal Drainage Boards (IDBs) or Lead Local Flood Authority (LLFA); in this case Warwickshire Country LLFA and Worcestershire County LLFA¹⁵².
- 5.7.10 There are three Main Rivers that intersect the Scheme. Piddle Brook intersects Sub-Site 1(c) and 1(e) and runs along the southern boundaries of Sub-Sites 2(c) and 2(d). The River Arrow runs along the eastern boundaries of Sub-Sites 2(b) and 2(e) and intersects CR3. The River Avon also intersects CR3.
- 5.7.11 A total of 30 Ordinary Watercourses intersect the Scheme. These can be seen in Volume II, Figure 5.7.7, which shows the location of the Site and the watercourses (both Ordinary Watercourses and Main Rivers) within the study area.
- 5.7.12 The remaining 79 watercourses (including Main Rivers Bow Brook, Noleham Brook and Littleton Brook) do not intersect the Scheme. The full table of watercourses and Scheme interactions can be seen in Volume III, Appendix A5.3.

¹⁵² UK Government (2025) IBD and LLFA Map. Available at: https://assets.publishing.service.gov.uk/media/60ca0e26e90e0743ae8c2997/Groundwater_flood_risk_management_in_England_-_appendix_D.pdf

Surface water abstractions and discharges

- 5.7.13 National Grid References (NGR) have been used to establish the location of discharges. Where the grid reference is directly on, or next to, a watercourse, it is assumed that this watercourse is the receptor. Where it is unclear, it is assumed the discharge is to ground. There are 10 active discharge permits assumed to be surface water within the study area. These can be seen in Volume III, Appendix A5.2 alongside the groundwater permits which are detailed in the groundwater section below.
- 5.7.14 Based on Groundsure data^{67,68,69,70}, there are 17 surface water abstraction permits within the study area. Details of permits effluent type, NGR and associated watercourse can be seen in Volume III, Appendix A5.4.

Lakes and other surface water features

- 5.7.15 Lakes are defined as man-made or natural standing water bodies greater than 2 ha with ponds being less than 2 ha¹⁵³. There are no WFD designated lakes within the 1 km study area.
- 5.7.16 There are a number of ponds located throughout the study area.

Designated sites

- 5.7.17 No SAC, Special Protection Areas (SPA) or Ramsar sites are located within the study area.
- 5.7.18 There is one Site of Special Specific Interest (SSSI) in the study area, Broom Railway Cutting, which is located 500 m south of Broom. This is in favourable condition and has no water pressures or dependencies and is not considered further in this assessment.
- 5.7.19 There are no National Nature Reserves (NNRs) within the study area. Cleeve Prior Bank Local Nature Reserve (LNR) is located within the study area near North Littleton. It has no water pressures or dependencies and is not considered further in this assessment.
- 5.7.20 The River Avon and its tributaries are designated as a Local Wildlife Site (LWS) within the study area.
- 5.7.21 There are no Drinking Water Protected Areas within the study area.

¹⁵³ Williams et al. (2023) The Pond Book: A Guide to Management and Creation of Ponds. 2nd Edition. Freshwater Habitats Trust. Available at: <https://www.nhbs.com/the-pond-book-book>

Groundwater

- 5.7.22 According to the BGS 1:50,000 mapped geology¹³⁹ there is moderate superficial deposit coverage, consisting of Alluvium Clay, Peat, Sand, Gravel and Silt. The middle section of the study area is largely underlain by the Lacustrine Alluvium Clay and Silt, as well as Sand and Gravel (Fluvial).
- 5.7.23 The study area is also underlain by areas of Secondary A superficial aquifer associated with the Alluvium Clay and Sand and Gravel formations. Secondary A aquifers are defined as *“permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers”*¹⁵³.
- 5.7.24 The study area is mostly underlain by Secondary B and Undifferentiated bedrock aquifers. These bedrock aquifer designations are associated with the Branscombe, Mercia and Charmount Mudstone Formations. Secondary B aquifers are defined as *“predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering”*. Secondary (undifferentiated) aquifers are assigned by the Environment Agency where it has not been possible to attribute either category A or B to a rock type.
- 5.7.25 Lithological descriptions of both superficial and bedrock geology and a generalised geological sequence are provided in Volume III, Appendix A5.5, Further detail particularly regarding made ground, soils and local geology can be found in Chapter 7: Ground Conditions and Contamination, and Chapter 8: Soils and Agriculture.
- 5.7.26 The bedrock and superficial geology in the study area can be seen in Volume I, Figure 5.7.5 and Figure 5.7.6.
- 5.7.27 The Warwickshire Avon – Secondary Mudrocks groundwater catchment (GB40902G990900)¹³⁶ covers the entirety of the Site, as shown in Volume II, Figure 5.7.2.
- 5.7.28 The details of the status of this groundwater body is set out in Volume III, Appendix A5.1, Table A5-4. For the catchment identified, the overall status is Good.
- 5.7.29 There are no groundwater dependent terrestrial ecosystems (GWDTE) within the study area.
- 5.7.30 From the reviewed sources of information outlined in the Baseline Section, there is no site specific information on groundwater levels and flow direction in the study area.

Groundwater abstractions and discharges

- 5.7.31 As mentioned above for surface water abstractions, if discharge grid references are not on or next to a watercourse, it is assumed the discharge is to groundwater. Under this premise, there are 13 groundwater discharge permits in the study area. These can be seen in Volume III, Appendix A5.3, alongside surface water discharge permits.
- 5.7.32 Based on Groundsure data^{67,68,69,70}, there are 11 groundwater abstraction permits within the study area. Details of permits effluent type, NGR and associated watercourse can be seen in Volume III, Appendix A5.3.
- 5.7.33 The dataset presented includes only current licences/permits. Duplicates and revoked licences/permits are excluded on the assumption that they are no longer relevant/active. At the ES stage, private water supply information will be collated to form part of the assessment.
- 5.7.34 There is currently no available Site -specific information on groundwater levels and flow directions in the study area¹⁴⁹, as ground investigation has not yet been undertaken.
- 5.7.35 There are no Source Protection Zones (SPZ) within the study area¹³⁸. There are no Drinking Water Safeguard Zones within the study area.

Flood Risk

- 5.7.36 Flood risk to each sub-Site has been assessed through a desktop review of currently available information. The definitions and general considerations for each source are outlined below. For each sub-Site and CRC, flood risk from rivers, surface water, reservoirs and historic events is summarised in Volume III, Appendix A5.7, with supporting figures. Other sources, where site-specific information is limited at this scoping stage, are assessed for the overall Site below.

Rivers /sea (Flood Zones)

- 5.7.37 The Flood Zones are defined as:
- Flood Zone 1 - Land having a less than 0.1% annual probability of river or sea flooding.
 - Flood Zone 2 - Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding.
 - Flood Zone 3 - Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea.

- 5.7.38 The Environment Agency's Long Term Flood Risk Map shows flood risk from rivers and the sea under defended conditions, while Flood Zones represent the undefended scenario. The extents are broadly similar, indicating no hydraulically significant defences in the study area, despite walls and embankments being listed in the Asset Information Management System (AIMS) Spatial Flood Defences dataset (Defra Data Services Platform)¹⁵⁴. Therefore, only the Flood Zones are described in this section.
- 5.7.39 Generally, the majority of the sites are located within Flood Zone 1 (low risk of flooding). Limited areas of all of the four Sites are located in Flood Zones 2 and 3 and are at a medium to high risk of fluvial flooding, including sub-Sites 1(b), 1(c), 1(d), 2(b), 2(c), 2(d), 2(e), 3(b), 3(d), 3(e), 3(f), 3(g), and Site 4 (Volume III, Appendix A5.7).

Surface water

- 5.7.40 The risk of flooding from surface water in the present-day scenario is defined as¹⁵⁵:
- 'High' - means more than 3.3% (1 in 30) chance of a flood each year.
 - 'Medium' - means between 1% (1 in 100) and 3.3% (1 in 30) chance of a flood each year.
 - 'Low' - means between 0.1% (1 in 1000) and 1% (1 in 100) chance of a flood each year.
 - 'Very low' - means less than 0.1% (1 in 1000) chance of a flood each year.
- 5.7.41 Parts of all sub-Sites are at risk of flooding from surface water (Volume III, Appendix A5.7).

Reservoir

- 5.7.42 Reservoir flooding represents a residual risk only. UK reservoirs are routinely monitored, inspected, and maintained in accordance with statutory requirements, meaning the probability of breach or failure is extremely low. The residual risk is defined as¹⁵⁶:
- 'Dry-day' scenario - Predicts the flooding that would occur if the dam or reservoir failed when rivers are at normal levels.

¹⁵⁴ Defra (2026) Asset Management. Available at: <https://environment.data.gov.uk/asset-management/index.html>

¹⁵⁵ Environment Agency (2025) Risk of flooding from surface water – understanding and using the map. Available at: <https://www.gov.uk/government/publications/flood-risk-maps-for-surface-water-how-to-use-the-map/risk-of-flooding-from-surface-water-understanding-and-using-the-map>

¹⁵⁶ Environment Agency (2025) Reservoir flood maps: when and how to use them. Available at: <https://www.gov.uk/guidance/reservoir-flood-maps-when-and-how-to-use-them>

- 'Wet day' scenario - Predicts how much worse the flooding might be if a river is already experiencing an extreme natural flood.

5.7.43 Two sub-Sites 2(b), and 2(e) are subject to residual flooding risk from reservoirs. Full details are provided in Volume III, Appendix A5.7.

Historic Flooding

5.7.44 Historic flooding has been assessed using the Environment Agency's Historic Flood Map, Recorded Flood outlines dataset and the Strategic Flood Risk Assessments (SFRAs) and is described for each sub-Site in Volume III, Appendix A5.7. Key historical events include flooding from the River Arrow in July 2007 and flooding from the River Avon and its tributaries in 1965, 1968, 1998 and 2007.

Groundwater Flooding

5.7.45 The ground conditions of the Scheme are outlined in Chapter 8 Soils and Agriculture.

5.7.46 According to the most up to date SFRA available from each local authority and the available Groundsure reports^{67,68,69,70}, groundwater flood risk is generally low across all Sites. Areas of higher risk are expected to be found along the River Arrow and River Avon, which cross through the Scheme. This is due to the presence of superficial alluvium deposits and floodplain soils with naturally high groundwater and therefore is most likely to impact sub-Sites 2(b) and 2(e).

Canals

5.7.47 The risk of flooding from canals to all Sites is considered low. The nearest canal is the Stratford-upon-Avon canal, located approximately 9 km northeast of the Scheme. No instances of overtopping from this canal have been recorded in the SFRAs.

Sewers

5.7.48 The Scheme is located in a predominantly rural area. As such, it is assumed at this stage that minimal sewer infrastructure is present across the Sites and, therefore, the risk is considered low for all Sites. No instances of sewer flooding to the Site have been identified from the SFRAs.

Likely Significant Effects and Proposed Mitigation

Construction and Decommissioning

Surface water (quality, quantity and hydromorphology)

- 5.7.49 During construction the following adverse impacts to surface water have the potential to occur if not mitigated:
- Pollution of surface water due to deposition or spillage of soils, sediments, oils, fuels, or other construction chemicals, or through uncontrolled site run-off including dewatering of excavations or piling.
 - Potential increases in the rate and volumes of surface water run-off due to soil compaction and the introduction of new impermeable areas.
- 5.7.50 These impacts are readily mitigatable through best practice measures and the adherence to Pollution Prevention Guidelines (PPGs¹²⁷). Although PPGs have been archived, they are still relevant and considered good practice. All above works will also be undertaken with adherence to Northern Ireland's, Wales's and Scotland's GPP, 2024¹⁵⁷ as this is current and there is no equivalent in force that is applicable to England. The necessary mitigation to ensure that significant adverse effects to surface waters will not occur will be set out in the oCEMP which will be submitted as part of the DCO application.
- 5.7.51 During decommissioning, potential impacts would be similar to the construction phase although it is anticipated that buried cables may be left in situ beneath watercourses and there would be less excavation works required close to watercourses. Decommissioning impacts are therefore also scoped out.

Groundwater

- 5.7.52 During construction the following adverse impacts to groundwater have the potential to occur if not mitigated:
- Potential impacts on groundwater resources and local water supplies (licenced and unlicenced abstractions) and potentially the baseflow to watercourses from temporary dewatering of excavations or changes in hydrology.

¹⁵⁷ NetRegs (2024) Guidance for Pollution Prevention (GPP). Available at: <https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/>

- Foundations may cause a temporary barrier to groundwater flow.
- Polluted surface water runoff and direct migration of mobile-pollutants to groundwater resources from construction vehicles, plant and high-risk activities that may contaminate groundwater resources.

5.7.53 The nature of the Scheme means there would be limited physical disturbance of aquifers and groundwater. Solar PV module mounting structures will be piled to an expected depth of between 1.5 and 4 m. The foundations for the Substations and BESS containers will likely be a reinforced concrete base to a maximum depth of 1 m, but if a piling solution is required, piles to a maximum depth of 12 m would be used. Cable trenches will typically be up to 2 m maximum depth.

5.7.54 Trenchless cable installation, including horizontal directional drilling may expose the aquifer to drilling fluids allowing the risk of pollution to the groundwater resources. Public and private water abstractions may also be affected by dewatering activities during construction.

5.7.55 The following mitigation measures will be secured via the oCEMP to ensure that significant effects do not arise:

- All above and underground works will be undertaken with adherence to GPP156 and relevant CIRIA guidance.
- The oCEMP will include measures to appropriately manage sediment and additional surface water runoff from impermeable areas during the construction phase, including, where appropriate, the use of temporary drainage systems.
- The oCEMP will secure a Horizontal Directional Drilling (HDD) breakout plan to mitigate against the impacts of the HDD deployment.
- No works will be carried out within 3 m of the aquifers. The design and accompanying GI must confirm that this is achievable and maintained to ensure construction activities do not adversely impact groundwater.

5.7.56 During decommissioning, potential impacts would be similar to the construction phase, although it is anticipated that buried cables may be left in situ beneath watercourses. Decommissioning impacts are therefore also scoped out.

Flood Risk

5.7.57 During construction, the Scheme could result in a temporary increase in flood risk on-site and elsewhere as follows:

- Potential increases in the rate and volumes of surface water run-off due to soil compaction and the introduction of new impermeable areas.
- Potential increases in flood risk due to location of construction works within areas at high/medium flood risk. Temporary stockpiling of material in the floodplain could result in a loss of flood storage and/or divert existing overland flow routes to areas that are not currently affected.
- Diversion of runoff, overland flow paths and watercourses during construction can lead to existing small watercourses being inundated, an increase in flood risk to third parties not currently at risk of flooding and increased risk of surface water flooding.
- Blockages within watercourses and/or impact upon the floodplains reducing their floodwater storage capability.
- Directional drilling could cause an increase in groundwater flood risk during construction.

5.7.58 The following mitigation measures will be incorporated into the oCEMP to ensure that significant adverse effects do not arise:

- All key infrastructure that would be sensitive to flooding, such as the BESS and substations will be sited within Flood Zone 1.
- An oCEMP which will include measures to appropriately manage surface water runoff from impermeable areas. It will also identify areas to locate construction compounds and access/egress sequentially in areas at the lowest flood risk from all sources.
- Where construction activities are required in-channel (e.g. to facilitate watercourse crossings) or in areas at risk of flooding from any source (e.g. crossing of floodplains during construction of the CR), additional mitigation measures will be required. These will include:
 - Development of a Flood Management Plan to ensure that the proposed construction Site can be safely operated and will not be affected in the event of a flood, and that floodplain working can be minimised as far as possible.
 - Adoption of the Environment Agency's flood warning system.
 - Implementation of temporary flood compensation areas in advance of any earthworks that would result in the loss of floodplain.
 - A Soil Management Plan (SMP) will be submitted with the DCO to mitigate the potential effects of increased soil compaction.

5.7.59 The risk from reservoirs and canals is considered low during construction and as such these elements have been scoped out of further assessment.

- 5.7.60 During decommissioning, potential impacts would be similar to the construction phase although it is anticipated that buried cables may be left in situ beneath watercourses and there would be less excavation works required close to watercourses.

Operation and Maintenance

Surface water (quality, quantity and hydromorphology)

- 5.7.61 During operational phase, the following surface water impacts may occur:
- Impacts on water quality in watercourses from run-off and the potential for accidental spillages from new permanent hardstanding and operation and maintenance activities, assuming surface water run-off ultimately drains to a surface watercourse rather than simply to ground.
 - Potential increases in the rate and volumes of surface water run-off due to soil compaction and the introduction of a limited amount of new impermeable areas, associated with the substation.
 - The current surrounding arable fields are likely treated with fertiliser. During the life of the proposed Scheme the use of such chemicals would be ceased or reduced which would lead to potential beneficial impacts on the water environment.
- 5.7.62 Mitigation measures for operational impacts include, but are not limited to:
- Implementation of SuDS to mitigate the impacts associated with any additional runoff generated as part of the Scheme.
 - Permeable surfaces beneath the panel areas will be maintained and planted with an appropriate seed mix ensure adequate vegetation cover to mitigate scour and rill / gully formation as a result of the 'drip effect' from the solar arrays. The maintenance of vegetation will be detailed in the OEMP / oLEMP for the lifetime of the proposed Scheme.
 - Where practicable, all Site activities, including the location of the solar panels will be located 10 m from any watercourses.
 - Access tracks will be permeable.
 - At this stage, there are no proposed watercourse realignments, diversions or new crossings required. These will be avoided during the design wherever possible.
- 5.7.63 Despite having watercourses within the study area, the nature of the Scheme means there is unlikely to be any significant effects to the water

environment during operation. The increase in impermeable area is limited to a small area for the electrical infrastructure including the BESS and substations. The concrete bases will be surrounded by gravel filled filter trenches, constructed to limit the lateral flow of water away from the equipment and replace the loss of natural infiltration caused by the concrete bases themselves. Surface water would be stored within the gravel sub-base prior to infiltrating into the ground as per the existing situation.

- 5.7.64 Water falling on to the solar arrays would drip on to the ground. In order to mitigate against potential erosion, the existing intensively managed agricultural land will be replaced by planted wildflower and grassland below the solar panels. The planted surface will act as a level spread / energy dissipater to promote low erosivity sheet flow during the operation of the Scheme. The vegetation will be managed organically and will either be mowed or used for light grazing. The existing situation for surface water flows would be retained so there would be no effect on surface waterbodies. The operation and maintenance impacts on surface water can be scoped out of further assessment.

Groundwater

- 5.7.65 During the Scheme operational phase, the following groundwater impacts may occur:
- Potential for impact on groundwater or surface water from firewater runoff in the event of a fire in the battery storage areas.
 - The current surrounding arable field are likely treated with fertiliser. During the life of the proposed Scheme the use of such chemicals would be ceased or reduced which would lead to potential beneficial impacts on the water environment.
 - Potential impacts on groundwater resources and local water supplies, which may include reduced irrigation demand.
- 5.7.66 Mitigation measures for operational impacts to groundwater receptors include, but are not necessarily limited to:
- Increased runoff (including firewater runoff) would be controlled by adherence to BPM included within the oBSMP and Drainage Strategy.
 - Implementation of SuDS to mitigate the pollution risk associated with runoff.
- 5.7.67 After construction, the only potential impacts of the Scheme include minimal increase in impermeable surfaces, and any lasting effects from directional drilling.

- 5.7.68 During the operational phase, the passive and non-polluting nature of the Scheme means the effects would not be significant. Maintenance would be minimal and best practice mitigation would be implemented to ensure no pollution incidents occur. The operation and maintenance impacts on groundwater can be scoped out of further assessment.

Flood Risk

- 5.7.69 Potential flood risk effects during operation include:
- Potential increase in flood risk to third party land due to increased surface water runoff from new hard standing.
 - Damage to new electrical infrastructure from flooding.
- 5.7.70 Multiple embedded mitigation measures will be incorporated into the Scheme design to mitigate the potential impacts on flood risk receptors. These include:
- Implementation of a sustainable drainage strategy and SMP to manage the additional surface water runoff generated from impermeable areas over the lifetime of the development, taking account of climate change and making provision for the adoption and maintenance, including any necessary access rights.
 - Electrical infrastructure including the BESS and substations would be located on concrete bases surrounded by gravel filled filter trenches. These will be constructed to limit the lateral flow of water away from the equipment and replace the loss of natural infiltration caused by the concrete bases themselves to greenfield run-off rates. Surface water would be stored within the gravel sub-base prior to infiltrating into the ground as per the existing situation.
 - Permeable surfaces beneath the panel areas will be maintained and planted with an appropriate seed mix ensure adequate vegetation cover to mitigate scour and rill/gully formation as a result of the 'drip effect' from the solar PV arrays. The maintenance of vegetation should be detailed in the oOEMP/LEMP for the lifetime of the proposed Scheme.
 - The access tracks will be designed to be permeable, thereby allowing surface water runoff to percolate into the ground below.
 - Sensitive electrical infrastructure such as the BESS and substations will be located outside of Flood Zones 2 and 3.
 - Fixed Solar PV Panels will have a minimum clearance of 0.4 m no less than 0.6 m above the 0.1% Annual Exceedance Probability (AEP) flood level.

- 5.7.71 With mitigation measures, operational impacts on fluvial and surface water flood risk are expected to be minimal and therefore flood risk aspects are scoped out.
- 5.7.72 The risk from reservoirs, canals and groundwater flooding is considered low during operation as it is assumed these will be appropriately maintained and are not within the Scheme boundary. As such these elements have been scoped out of further assessment.
- 5.7.73 The risk of sewer flooding is very low as there no anticipated changes to the sewer network as a result of the Scheme and the largely rural nature of the Site, and therefore this has been scoped out of further assessment.
- 5.7.74 A separate FRA will be submitted as part of the DCO application to demonstrate that there are no unacceptable increases in flood risk, on or off-site, during the operational phase.

Summary

- 5.7.75 Table 5-14 provides a summary of the scoping decisions for Water Environment based on the previous information provided.

Table 5-14 Summary of Scoping Decisions for Water Environment

Potential Effect	Scoping Decision and Justification
Construction phase	
Surface water (quality, quantity and hydromorphology)	Scoped out - Main Rivers and Ordinary Watercourses intersect the RLB and cabling where construction works are required. However, impacts will be mitigated through the implementation of a CEMP, PPGs.
Groundwater	Scoped out - Construction works include directional drilling may expose the aquifer to drilling fluids and dewatering activities may threaten groundwater abstractions. However, impacts should be mitigated through the implementation of a CEMP and PPGs. No works will occur within 3 m of an aquifer and an HDD breakout plan will ensure the HDD CR will not cause significant impacts to groundwater.
Flooding from rivers/sea	Scoped out - Parts of multiple sites located in Flood Zone 2/3 (sub-Site 1(b), 1(c), 1(d), 2(b), 2(c), 2(d), 2(e), 3(b), 3(d), 3(e), 3(f), 3(g), and Site 4). Impacts will be mitigated through the implementation of embedded mitigation and a CEMP. A separate FRA will be submitted as part of the DCO application to demonstrate that there will be no significant effects.

Potential Effect	Scoping Decision and Justification
Flooding from surface water	Scoped out - Parts of all Sites at risk of flooding from surface water. Impacts will be mitigated through the implementation of embedded mitigation and a CEMP.
Flooding from groundwater	Scoped out - Areas at higher risk of groundwater flooding such as the River Arrow and River Avon may require trenchless cable installation. Impacts will be mitigated through the implementation of embedded mitigation and a CEMP. A standalone FRA will consider this in more detail.
Flooding from reservoirs	Scoped out - While two Sites are at risk of flooding from reservoirs, this is a residual risk that is not likely to be significant.
Flooding from canals	Scoped out - No nearby canals.
Flooding from sewers	Scoped out - Sewer impact unlikely to be significant due to rural nature of development.
Operational phase	
Surface water (quality, quantity and hydromorphology)	Scoped out - Operational impacts are anticipated to be low once the Scheme is in place. Maintenance will be limited and any minor impacts will be mitigated through an OEMP and drainage strategy.
Groundwater	
Flooding from rivers/sea	Scoped out - Parts of multiple sites located in Flood Zone 2/3 (sub-Site 1(b), 1(c), 1(d), 2(b), 2(c), 2(d), 2(e), 3(b), 3(d), 3(e), 3(f), 3(g), and Site 4). Impacts will be mitigated through embedded mitigation measures. A standalone FRA will demonstrate that no adverse effects will arise.
Flooding from surface water	Scoped out - Parts of all Sites at risk of flooding from surface water. Impacts will be mitigated through embedded mitigation measures. A standalone FRA will demonstrate that no adverse effects will arise.
Flooding from groundwater	Scoped out - Groundwater impact unlikely to be significant.
Flooding from reservoirs	Scoped out - While two Sites are at risk of flooding from reservoirs, this is a residual risk that is not likely to be significant.
Flooding from canals	Scoped out - No nearby canals.

Potential Effect	Scoping Decision and Justification
Flooding from sewers	Scoped out - Sewer impact unlikely to be significant due to rural nature of development.
Decommissioning phase	
All effects	Scoped out – Similar to construction although works are likely to be less intrusive and there is less potential for effects to arise.

5.8 EMFs

Overview

- 5.8.1 This chapter of the Scoping Report considers the approach to the assessment of likely significant effects of EMFs by the Scheme during its construction, operation and decommissioning phases, with particular focus on risk to human health.
- 5.8.2 The chapter will describe and identify the potential level of effects arising as a result of the Scheme. This chapter covers the following infrastructure:
- CRs;
 - Substations including inverters, transformers and switchgear;
 - BESS.
- 5.8.3 EMFs 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 Scheme the most significant sources will be from electricity cables, substations and associated infrastructure which will connect the Scheme to the National Grid.
- 5.8.4 Electricity infrastructure emits low-frequency electromagnetic radiation (EMR) which creates an EMF. EMFs comprise EMFs. 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 EMFs diminishes with increasing distance from the source. EMFs can have both direct and indirect effects on human health.

Relevant Legislation, Policy and Guidance

- 5.8.5 This Scoping Report has considered the NPS for Electricity Networks Infrastructure (NPS EN-5)¹⁵ which came into effect in December 2025.
- 5.8.6 NPS EN-5 states that:

- Paragraph 2.9.45 - "The intensity of both EMFs diminishes with increasing distance from the source."
- Paragraph 2.9.46 - "Underground cables eliminate the EMFs are highest directly above the cable."
- Paragraph 2.9.48 to 2.9.49 - Reference levels in International Commission Non-Ionizing Radiation Protection (ICNIRP) 1998 guidelines are used to assess compliance.
- Paragraph 2.10.12 - Where compliance with public exposure guidelines is shown, no further mitigation should be necessary.

- 5.8.7 All electrical infrastructure used across the Scheme will be European Conformity (CE) and/or United Kingdom Conformity Assessed (UKCA) marked, ensuring compliance with Electromagnetic Compatibility Directive 2014/30/EU and relevant UK legislation.
- 5.8.8 The Control of EMFs at Work Regulations 2016¹⁵⁸ embed ICNIRP 1998 exposure guidelines into workplace safety standards.
- 5.8.9 There is no statutory provision in NSIP legislation regarding issues relating to protection from, EMF. However, in 2012, the Department for Energy and Climate Change (now Department for Energy Security and Net Zero) advised that 1998 ICNIRP guidelines for both occupational and public exposure should be considered.
- 5.8.10 These guidelines state that "overhead power lines at voltages up to and including 132 kV, underground cables at voltages up to and including 132 kV and substations at and beyond the publicly accessible perimeter" are not capable of exceeding the ICNIRP exposure guidelines for EMFs. Furthermore, the intensity of PINS guidance states "Where proposed cables are over 132 kV, an EMF assessment should be provided in an appendix to the ES. This should include the location, routing and voltages of any cables over 132 kV and a risk assessment to any human and ecological sensitive receptors within the Zol". The guidance also states that EMF does not warrant a separate ES chapter.

Baseline

- 5.8.11 The Scheme will be located within existing field boundaries and will consist of numerous solar panel areas with varying distances between them. The area will be connected to the grid via buried interconnecting underground cables. The specific location for the CRs has yet to be finalised.

¹⁵⁸ Health and Safety Executive (2026) The Control of Electromagnetic Fields at Work Regulations. Available at: <https://www.hse.gov.uk/radiation/nonionising/emf-regulations.htm>

- 5.8.12 The 400kV cables will connect into the existing electrical infrastructure, as well as a proposed BESS to store surplus energy. There are no existing CRs, solar panels or other associated electrical infrastructure present within the developable area which will be used as part of the Scheme. However other infrastructure, such as overhead power lines which are not associated with the Scheme, are present within the baseline environment.

Likely Significant Effects and Proposed Mitigation

Receptor Sensitivity

- 5.8.13 Local residents and the general public: human receptors, are of 'Medium' sensitivity because people experience EMFs from the man-made and natural environment regularly, usually subject to commercial limits and have the capacity to experience changes to exposure within acceptable limits.

Magnitude of Impact

- 5.8.14 Magnitude of impact: The magnitude of effect upon receptors is predominantly dependent on the following factors:
- The predicted EMF level;
 - The duration a person may be experience EMFs; and
 - The person's setting e.g. a dwelling, office, Public Right of Way (PRoW), etc.
- 5.8.15 A 'Negligible' magnitude would occur if no EMF could be experienced by any person.
- 5.8.16 A 'Low' magnitude would occur if a person could be subjected to EMF which was below the reference health limit with respect to their setting as per ICNIRP guidance.
- 5.8.17 A 'Medium' magnitude would occur if a person could be subjected to EMF which was above the reference health limit but below the human health limit with respect to their setting as per ICNIRP guidance e.g. increased exposure limits based on a person's profession.
- 5.8.18 A 'High' magnitude would occur if a person could be subjected to EMF which was above the human health limit with respect to their setting as per ICNIRP guidance.

Significance of Effect

- 5.8.19 The significance of an environmental effect is determined by the interaction of magnitude and sensitivity. This impact significance matrix is set out in Section 2.3 of this Report.
- 5.8.20 Overall, the level of effect would be considered 'Significant' if the resultant significance of effect were 'Moderate' or 'Major'.

Summary

- 5.8.21 There will be no generation of EMF during construction and decommissioning, as electricity will not be generated or transported during these phases. The potential effects of EMFs will therefore be considered for the operational phase. Good design practice will contribute to the placement of potentially EMF generating equipment and infrastructure, to reduce potentially significant impacts on human health. Embedded measures relevant to EMF include:
- The use of underground cabling;
 - Locating the BESS and Substations away from sensitive receptors;
 - A minimum of 15 m buffer from all infrastructure (excluding cables) to PRow; and
 - The design of the Scheme's electrical infrastructure will be in accordance with all relevant codes and practices.
- 5.8.22 The Scheme is therefore predicted to have a 'minor' effect, at worst, upon surrounding receptors. The 400kV cables would be underground and therefore surface EMF would be below the ICNIRP guidance limited. Additionally, the cables would not be located in areas where people would linger for extended period and any significant impacts identified will be mitigated through design alterations. It is therefore proposed that impacts from EMFs be scoped out of the ES.
- 5.8.23 Discussion around the risk of EMF based on the Scheme design will be made within an 'Other Matters' chapter within the ES and a technical impact assessment will be carried out (which will form an appendix to the Other Matters chapter) and will consider the following infrastructure:
- Above ground and underground cabling;
 - Substations; and
 - BESS.

Cumulative Effects in relation to EMF

- 5.8.24 Cumulative effects in relation to EMF are possible where proposed infrastructure is sited close to existing sources of EMFs however effects not predicted to be significant with implementation of appropriate buffers and measures, as outlined in previous sections. Should cumulative effects be identified, these will be addressed within the Cumulative Effects chapter within the ES.

6 Ecology and Biodiversity

6.1 Introduction

- 6.1.1 The Ecology and Biodiversity chapter of the ES will consider the likely effects of the Scheme on relevant ecological features during construction, operation and decommissioning phases. It will present the findings of desk studies and field surveys to establish the baseline, confirm features to be scoped in or out of the assessment, evaluate ecological features and assess likely effects upon these features. It will also set out proportionate avoidance, mitigation, compensation and enhancement measures with reference to relevant nature conservation legislation and planning policies.
- 6.1.2 The ES will consider ecological features including:
- Statutory and non-statutory designated sites for nature conservation at local, national and international levels;
 - National and local priority habitats and species; and
 - Other legally protected, red-listed or notable species of conservation interest.
- 6.1.3 This Chapter of the Scoping Report presents a preliminary assessment of the baseline biodiversity conditions which is based on the findings of a desk study and a scoping walkover survey. It sets out the proposed scope of work to be undertaken to establish the baseline more fully.
- 6.1.4 Supporting this Chapter are the following figures and appendices:
- Volume II, Figure 6.1 – Statutory and Non-Statutory Designated Sites;
 - Volume II, Figure 6.2 – Ancient Woodland;
 - Volume II, Figure 5.7.4 – Fluvial Flooding (showing watercourses within 1 km of the Scheme); and
 - Volume III, Appendix A6.1 – Desk- Study Results.

6.2 Legislation, Policy and Guidance

- 6.2.1 The following legislation, policy and guidance have been taken into account in the ecology and biodiversity scoping assessment:
- Legislation:
 - Environment Act 2021⁹;

- Conservation of Habitats and Species Regulations 2017 (as amended)¹⁵⁹;
 - Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971 (hereafter referred to as the 'the Ramsar Convention')¹⁶⁰;
 - Wildlife and Countryside Act 1981 (as amended)¹⁶¹;
 - Natural Environment and Rural Communities (NERC) Act 2006¹⁶²;
 - Protection of Badgers Act 1992¹⁶³;
 - Wild Mammals (Protection) Act 1996¹⁶⁴;
 - The Hedgerow Regulations 1997¹⁶⁵;
 - The Invasive Alien Species (Enforcement and Permitting) Order 2019¹⁶⁶;
 - The Eels (England and Wales) Regulations 2009¹⁶⁷;
 - Salmon and Freshwater Fisheries Act 1975¹⁶⁸;
 - The Environmental Permitting (England and Wales) Regulations 2016⁴³;
 - Land Drainage Act 1991¹¹³; and
 - Water Environment (WFD) (England and Wales) Regulations 2017¹¹⁸.
- Policy:
 - NPS for Energy (EN-1) (2025)¹³
 - NPS for Renewable Energy Infrastructure (EN-3) (2025)¹⁴
 - NPS for Electricity Networks Infrastructure (EN-5) (2025)¹⁵

¹⁵⁹ As amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Available at: <https://www.legislation.gov.uk/uksi/2019/579/contents/made>

¹⁶⁰ UNESCO (1994) Convention on Wetlands of International Importance especially as Waterfowl Habitat. Available at: https://unesco.org.uk/site/assets/files/14166/convention_on_wetlands_of_international_importance_especially_as_waterfowl_habitat_1971.pdf

¹⁶¹ Wildlife and Countryside Act 1981. Available at: <https://www.legislation.gov.uk/ukpga/1981/69/contents>

¹⁶² Natural Environment and Rural Communities (NERC) Act 2006. Available at: <https://www.legislation.gov.uk/ukpga/2006/16/contents>

¹⁶³ Protection of Badgers Act 1992. Available at: <https://www.legislation.gov.uk/ukpga/1992/51/contents>

¹⁶⁴ Wild Mammals (Protection) Act 1996. Available at: <https://www.legislation.gov.uk/ukpga/1996/3/contents>

¹⁶⁵ The Hedgerow Regulations 1997. Available at: <https://www.legislation.gov.uk/uksi/1997/1160/contents>

¹⁶⁶ The Invasive Alien Species (Enforcement and Permitting) Order 2019. Available at: <https://www.legislation.gov.uk/uksi/2019/527>

¹⁶⁷ The Eels (England and Wales) Regulations 2009. Available at: <https://www.legislation.gov.uk/uksi/2009/3344>

¹⁶⁸ Salmon and Freshwater Fisheries Act 1975. Available at: <https://www.legislation.gov.uk/ukpga/1975/51/contents>

- NPPF (2024)¹⁸
- ReBC - Borough of Redditch Local Plan No. 4 (2011-2030)²³
- Stratford-on-Avon - District Council - Stratford-on-Avon District Core Strategy 2011 to 2031²⁵
- Warwickshire, Coventry & Solihull Local Biodiversity Action Plan (LBAP)¹⁶⁹
- WyDC - SWDP (2016)²⁴
- Warwickshire, Coventry & Solihull Local Nature Recovery Strategy (LNRS)¹⁷⁰
- Guidance:
 - WoCC 'Ecology Planning Advice'¹⁷¹
 - WoCC - Worcestershire LNRS¹⁷²
 - Chartered Institute for Ecology and Environmental Management (CIEEM) guidelines for Preliminary Ecological Appraisals¹⁷³
 - CIEEM guidelines for Ecological Impact Assessment¹⁷⁴
 - Statutory BNG Metric Guidance¹⁷⁵

¹⁶⁹ Warwickshire Wildlife Trust (2026) Local Biodiversity Action Plan (LBAP). Available at: <https://www.warwickshirewildlifetrust.org.uk/LBAP>

¹⁷⁰ Warwickshire Coventry and Solihull Local Nature Partnership (2026) Local Nature Recovery Strategy. Available at: https://4d8b06f4.isolation.zscaler.com/profile/d4d21caa-b910-4059-b9bd-d371de614d48/zia-session/?controls_id=fe27823c-8ad9-4b16-b127-dc1676a64050&region=lon&tenant=4f6bd1668b31&user=6cc4c449dc91edeaf959505a358d14fa6a0c66f3e363578af2807258067f564&original_url=https%3A%2F%2Fwww.wcslnp.co.uk%2Flnrs&key=sh-1&hmac=b704ff424d63aba94aa5780ec2f99b8b6d59dfbff31fb4a4b6b0db5b6161e8b5

¹⁷¹ Worcestershire County Council (2026) Ecology Planning Advice. Available at: <https://www.worcestershire.gov.uk/council-services/planning-and-developments/environmental-policy/ecology-planning-advice>

¹⁷² Worcestershire County Council (2026) The Worcestershire Local Nature Recovery Strategy (LNRS): quick guide. Available at: https://www.worcestershire.gov.uk/sites/default/files/2025-09/worcestershire_lnrs_quick_guide.pdf

¹⁷³ CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Available at: <https://cieem.net/resource/guidance-on-preliminary-ecological-appraisal-gpea/>

¹⁷⁴ CIEEM (2022) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Available at: <https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.2-April-22-Compressed.pdf>

¹⁷⁵ Defra (2025) The Statutory Biodiversity Metric: User Guide. Available at: https://assets.publishing.service.gov.uk/media/689c5ee17b2e384441636196/The_Statutory_Biodiversity_Metric_-_User_Guide_-_July_2025.pdf

6.3 Baseline Environment

6.3.1 At this stage, baseline information has primarily been gathered through desk study. Additionally, a scoping walkover was undertaken which comprised walking over key areas within the Sites over the course of two days on 4 and 5 December 2025. The broad habitat types within the areas of the Sites visited during the scoping walkover were noted and any evidence of protected and/ or priority species were noted during the survey.

6.3.2 The extent of the ecological Study Area has been determined by the likely spatial scale of potential significant effects using professional judgement, reviewing planning documents associated with other solar NSIPs and based on current good practice guidance within the Chartered Institute for Ecology and Environmental Management (CIEEM) guidelines¹⁶⁴.

Desk Study

6.3.3 Baseline data has been gathered from a range of sources through data requests with local biological data record centres and using online resources. This included data gathering in relation to statutory and non-statutory designated sites for nature conservation and protected and priority species.

6.3.4 The Study Area methodology for the Desk Study comprises:

- Statutory designated sites for nature conservation: Within 2 km of the Scheme boundary, extended to 10 km for international sites; (comprising Special Protection Areas (SPA), SAC and Ramsar sites, as well as proposed or potential SACs, SPAs and Ramsar sites), and up to 30 km for international sites relating to bats and migratory birds;
- Non-statutory designated sites for nature conservation: Within 2 km of the Scheme;
- Priority habitats¹⁷⁶ and ancient woodland: Within 1 km of the Scheme boundary;
- Ancient and Veteran trees: Within 500 m of the Scheme boundary;
- Protected and priority species¹⁷⁷: Within 1 km of the Scheme boundary (extended to 2 km for bats);

¹⁷⁶ Priority habitats are those habitats listed in accordance with Section 41 of the Natural Environment and Rural Communities Act 2006 (the NERC Act) as being of principal importance for the conservation of biodiversity in England.

¹⁷⁷ Priority species in this context comprise species listed in accordance with Section 41 of the NERC Act; IUCN Red List species; Red and Amber Birds of Conservation Concern; and species that are Nationally Scarce or Rare.

- Watercourses: Within and 150 m from the Scheme boundary¹⁷⁸, and 2 km from the boundary for watercourses hydrologically connected to the Scheme¹⁷⁹. This area may be extended through professional judgement as necessary; for example, an Environment Agency fish monitoring site 3 km from the boundary, may be considered a suitable proxy for aquatic receptors within the Scheme boundary¹⁸⁰; and
- Standing waterbodies: Within and immediately adjacent to the Scheme boundary¹⁸¹, extended to 250 m where there is potential suitability for great crested newts.

6.3.5 The following organisations/web resources were consulted during the desk study:

- Warwickshire Biological Records Centre (WaBRC);
- Worcestershire Biological Records Centre (WoBRC);
- Multi-Agency Geographic Information for the Countryside (MAGIC) website¹³⁸;
- Woodland Trust Ancient Tree Inventory¹⁸²;
- Online aerial imagery¹⁸³;
- Environment Agency Ecology and Fish Data Explorer website¹⁸⁴;
- Environment Agency Catchment Data Explorer website¹³⁶; and
- Environment Agency Statutory Main River Map¹⁵⁰.

¹⁷⁸ Allows for identifying potential effects which could arise through direct/ indirect habitat loss, physical modification, disturbance and/ or changes to water quality/ quantity and those at risk from disturbance due to their proximity to the Scheme. This could be through, for example, overland pollution or mobilisation of fine sediment from the working area.

¹⁷⁹ Hydrologically connected receiving watercourses and any dependant ponds, lakes and designated sites which are potentially at risk due to propagation of effects from watercourses affected within the Sites and CRC boundaries.

¹⁸⁰ Watercourses include both Main River (as shown on the Environment Agency's Main River Map) and ordinary watercourses (all other watercourses shown on OS mapping not classified as Main River).

¹⁸¹ Standing waterbodies include both ponds and lakes, where lakes are greater than 2 ha in size.

¹⁸² Woodland Trust (2026) Ancient Tree Inventory. Available at: <https://ati.woodlandtrust.org.uk/>

¹⁸³ Assessed using available aerial imagery at <https://www.google.com/maps/>.

¹⁸⁴ Environment Agency (2021). Ecology & Fish Data Explorer. Available at: <https://environment.data.gov.uk/ecology/explorer/>.

The Scheme and Ecological Context

- 6.3.6 The full results of the desk study are detailed in Volume III, Appendix A6.1. Volume II, Figure 6.1 shows the location of statutory and non-statutory designated sites for nature conservation within 2 km of the Scheme boundary and Volume II, Figure 6.2 shows the location of ancient woodland within 500 m of the Scheme boundary. Volume II, Figure 5.7.4 shows watercourses within 1 km of the Scheme boundary which encompasses the main extent of the aquatic Study Area.
- 6.3.7 The Scheme is predominantly located between the towns of Alcester and Evesham in a rural landscape characterised by agricultural land with occasional villages and individual properties. The Scheme is split into four separate Sites across the counties of Worcestershire and Warwickshire which is where built development will be located (solar panels, battery storage and other associated infrastructure). Agricultural land is located across all aspects of the Sites. The Sites comprise primarily large arable fields with boundary hedgerows and individual trees. There are occasional small woodland coppices, grassland pasture fields, and agricultural buildings. Watercourses and ponds are also present within and adjacent to the Sites (see below for more details).
- 6.3.8 Alongside the Sites, the Scheme also comprises the CRC, which links Sites 1 to 4 to each other and to the PoC at the NGET Feckenham Substation, which is located north of Site 1. Similarly to the Sites, the CRC passes through mainly agricultural land, comprised of both arable and pasture fields with associated hedgerow boundaries. The CRC also intercepts small woodland coppices, watercourses (see below for more details) and roads.
- 6.3.9 The Study Area is located across three WFD operational catchments: Avon – Midlands West; Avon Rural Rivers and Lakes; and Avon Urban Rivers and Lakes, which has been historically impacted by phosphate pollution.
- 6.3.10 The Study Area is intersected by six Main Rivers¹⁷⁰ of note: the River Avon, River Arrow, Piddle Brook, Ban Brook, Littleton Brook, and Noleham Brook, as well as various unnamed watercourses (all of which are tributaries of the River Avon). There are numerous Environment Agency species monitoring sites present on/ adjacent to the Scheme.
- 6.3.11 Dispersed within the Scheme boundary are approximately 70 ponds of varying sizes.

Preliminary Baseline and Further Baseline Survey Requirements

- 6.3.12 Following a review of the desk study data and information obtained from the scoping walkover survey, a preliminary appraisal of the Sites and CRC has been undertaken, and a number of ecological receptors have been identified as being within/potentially within the Zone of Influence¹⁸⁵ (Zol) of the Scheme. The known and/ or potential ecological receptors present within the Zol are shown in Table 6-1 below.
- 6.3.13 The Study Area for each ecological receptor and the proposed ecology field surveys to be undertaken are set out in Table 6-1. The proposed ecological surveys are required, in relation to each receptor, to inform the baseline, assessment and mitigation, compensation and enhancement measures. The scope of the surveys may be modified following the results of the survey work and/or consultation with stakeholders.

¹⁸⁵ The Zone of Influence (Zol) is an area within which ecological features may be subject to biophysical changes as a result of the Scheme.

Table 6-1 Preliminary Baseline and Requirements for Further Survey

Ecological Receptor	Summary of Baseline Data	Further Survey Proposed to Inform the Baseline
Designated Sites for Nature Conservation	No international sites for nature conservation are present within 10 km of the Scheme, nor are there any international sites relating to bats or migratory birds within 30 km of the Scheme. There are six statutory designated sites for nature conservation within 2 km of the Scheme. The closest of which is Wylde Moor, Feckenham Site of Special Scientific Interest (SSSI), located 130 m west of CRC1. There are 24 non-statutory designated sites for nature conservation present within 2 km of the Scheme. The closest of these are: Alcester Broom Disused Railway Local Wildlife Site (LWS) located within Site 2(b), 2(e) and CRC3; Lady's Coppice & Morton Bank LWS located within CRC1; Piddle and Whitsun Brooks LWS located within CRC1; River Arrow LWS located within CRC3; River Avon and Tributaries LWS located within CRC3; Slade Wood LWS adjacent to Site 1(a); Sands Meadow LWS adjacent to CRC1; Abbots Morton Road Verge LWS adjacent to Site 1(c) and 1(e); Shurnock Meadows LWS adjacent to CRC1; Weethley Wood and Bank Complex LWS adjacent to Site 1(c) and 1(e); and, Fox Covert LWS adjacent to Site 3(f) and 3(e).	The non-statutory designated sites located within and adjacent to the Scheme boundary will be included in the terrestrial habitat surveys described below, as well as a number of other species-specific surveys, also described below. Following the habitat and species surveys (see relevant rows within this table for details), an assessment of the Sites and CRC to be linked to any designated sites will be undertaken to determine if there are likely impacts resulting from the Scheme to any designated sites.
Terrestrial Habitat (including Priority /	The desk study returned records of coastal and floodplain grazing marsh, deciduous woodland,	A survey will be undertaken to map the habitats within and up to 50 m (where appropriate and

Ecological Receptor	Summary of Baseline Data	Further Survey Proposed to Inform the Baseline
Irreplaceable Habitats and priority/ protected plant species)	lowland meadow and traditional orchard within/ adjacent to the Scheme. Six areas of ancient woodland are immediately adjacent to the Sites and a further four areas of ancient woodland are present within 500 m of the Sites. Two areas of ancient woodland are located within 500 m of the CRC; the closest is located adjacent to CRC1. Although habitat surveys are yet to be undertaken, aerial imagery shows that the Sites consists mainly of cropland bound by hedgerows with associated grassland field margins. There are also areas of grassland pasture and small woodland coppices are present. The CRC has a similar habitat composition, however, from aerial imagery it appears that there is a greater abundance of pasture. There are also a number of watercourses within/ adjacent to the Sites and intercepted by the CRC; these are discussed in more detail elsewhere within this table.	access allows) from the Sites and the CRC, using the UK Habitat Classification (Version 2)¹⁸⁶ (UKHab). Habitats will be recorded to at least Level 3 of the UKHab hierarchy, i.e. broad habitats such as neutral grassland or dense scrub. Wherever possible, surveys will aim to record to at least Level 4 of the UKHab hierarchy so that habitats of ecological importance, e.g. priority habitats, can be identified. Hedgerows on the Sites and CRC will also be assessed against the wildlife and landscape criteria as specified in The Hedgerows Regulations (1997). To determine if habitats are Priority Habitats, and to identify any protected or priority plant populations, it may be necessary to undertake more detailed botanical surveys, such as National Vegetation Classification (NVC) survey. Habitat type and condition will be recorded to enable completion of the Statutory Biodiversity Metric¹⁸⁷. Habitat surveys will be undertaken between April and September, which is the optimal period.

¹⁸⁶ UK Habitat Classification v2.0 system under licence (© UKHAB LTD, under licence. No onward licence implied or provided. All rights reserved [<https://ukhab.org/register/>]).

¹⁸⁷ Defra (2025) Statutory biodiversity metric tools and guides. Available at <https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides>

Ecological Receptor	Summary of Baseline Data	Further Survey Proposed to Inform the Baseline
Ancient/ veteran trees	The desk study identified numerous records of veteran trees within 500 m of the Scheme, including four veteran trees within CRC1, one veteran tree located within Site 1 (c), one veteran tree within CRC3. There is potential for additional ancient/ veteran trees to be present within the Sites and CRC.	The presence of ancient/ veteran trees will be recorded during the UKHab survey. Arboricultural surveys will be undertaken where appropriate, drawing on the 'Standing advice on ancient woodland, ancient trees and veteran trees¹⁸⁸'.
Amphibians	WaBRC and WoBRC returned records of amphibians, including great crested newts (GCN), within 1 km of the Scheme. The closest includes three records of GCN within CRC1. There are approximately 230 waterbodies within/ up to 250 m from the Scheme, which have potential to support amphibians, including GCN. Hedgerows, arable field margins and small woodland coppices within the Scheme provide suitable terrestrial habitat for amphibians.	Waterbodies within and up to 250 m of the Scheme will be assessed for their suitability to support GCN. Significant effects are considered unlikely beyond this distance. Where there are no barriers to amphibian movement, and waterbodies are connected to the Scheme by suitable habitats, these will be subject to Habitat Suitability Index (HSI) assessment¹⁸⁹ (where access can be secured). HSI assessments can be undertaken at any time of year. Where suitable breeding waterbodies are identified during the HSI assessment, they will be subject to an environmental DNA (eDNA) survey

¹⁸⁸ Natural England and Forestry Commission (2022) Ancient woodland, ancient trees and veteran trees: advice for making planning decisions. Available at: <https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions>

¹⁸⁹ Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*) Herpetological Journal 10 (4), 143-155 (2000). Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. The great crested newt Habitat Suitability Index (HSI) is a quantitative measure of aquatic habitat quality for great crested newt. The HSI is a number between 0 and 1, derived from an assessment of ten habitat variables known to influence the presence of newts.

Ecological Receptor	Summary of Baseline Data	Further Survey Proposed to Inform the Baseline
		with reference to industry standard methodology ¹⁹⁰ . The recommended survey window for eDNA survey is 15 April to 30 June.
Bats	WaBRC and WoBRC returned numerous records of bats with 2 km of the Scheme, the closest being six records immediately adjacent to CRC1. The majority of the Scheme comprise open arable farmland of limited value for bats. Within the Scheme, the small woodland coppices, hedgerows, dense scrub, waterbodies and watercourses provide more suitable bat foraging and commuting habitat and there is connectivity to suitable habitat within the surrounding landscape. The more suitable habitats within the Scheme provide potential foraging and commuting opportunities for a range of bat species.	<u>Roosts</u> Ground level inspection of all trees and buildings within the Scheme, and up to 50 m where appropriate (for example, in targeted locations where Scheme impacts are considered to extend to this distance) and where access can be secured, to assess their suitability for roosting bats. It is proposed to undertake the ground level inspections in early 2026. Depending on the findings of the above surveys and risk to the features, further surveys may be required to determine whether bat roosts are present or likely absent. <u>Activity</u> Bat activity survey work will be undertaken within the Sites with reference to industry bat survey guidance¹⁹¹ and based on a 'moderate' habitat suitability. Automated static detectors will be deployed for at least five consecutive nights per month in 36

¹⁹⁰ Biggs, et al (2014) Technical Advice Note for Field and Laboratory Sampling of Great Crested Newt eDNA in Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067. Appendix 5. Freshwater Habitats Trust, Oxford.

¹⁹¹ Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London

Ecological Receptor	Summary of Baseline Data	Further Survey Proposed to Inform the Baseline
		locations across the Sites between April and October 2026. To aid with understanding bat use of the Site habitats, it is proposed that static bat detectors will be positioned in the central areas of arable fields and each will be 'paired' with a static detector positioned on the closest field boundary such as a hedgerow or woodland edge. The purpose will be to provide comparative data between the field centre and the field boundary hedgerow / woodland edge. As less bat activity is typically expected in the field centres, the pairing of detectors allows comparison on a selection of fields to see whether evidence aligns with this concept and to gain an indication of the use of different parts of the fields, considering that the field centres would be the typical habitat type directly impacted by the Scheme. Night-time bat walkover surveys are an alternative survey method for recording bat activity that can be used in conjunction with automated static detectors. Whilst useful they provide only relatively brief snapshots of bat activity, limiting data collection efficiency compared to continuous monitoring with automated static detectors. Due to the size of the Scheme and relative homogeneity and the Sites, and the likely

Ecological Receptor	Summary of Baseline Data	Further Survey Proposed to Inform the Baseline
		retention of the majority of suitable bat foraging and commuting habitats, it is considered that using a larger number of automated static detectors in-lieu of night-time bat walkovers will provide a reliable and efficient dataset to inform the baseline and assessment. On this basis, night-time bat walkover surveys are not proposed. Activity surveys are not proposed to be undertaken within the CRC, as impacts will be temporary and there is unlikely to be significant loss of suitable foraging and commuting habitat.
Badgers	WaBRC and WoBRC returned one badger record from within 1 km of the Scheme, located 640 m west of CRC1. Suitable habitats are present within the Scheme for foraging and commuting badgers such as hedgerows, small woodland coppices and cropland. Hedgerows and woodland areas also provide opportunities for sett creation. One active badger sett was recorded within a hedgerow during the scoping walkover survey.	A badger survey of the Scheme and up to 30 m from the Scheme boundary (where access can be secured), will be undertaken to identify badger setts and field signs, such as latrines, dung pits and prints, in line with good practice guidance¹⁹². Badger surveys can be undertaken at any time of the year, however, between November and April is considered optimal as vegetation levels are low and activity is high, therefore evidence is more visible.
Breeding birds	WaBRC and WoBRC returned numerous records of breeding birds, including species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), within 1 km of the Scheme. The closest	Breeding bird surveys will be undertaken within the Sites, as this is where impacts to breeding birds are anticipated. To ensure full coverage of the Sites, the survey will be split into seven transect routes.

¹⁹² Harris S., Cresswell P. and Jefferies D. (1989) Surveying badgers. Mammal Society – No9.

Ecological Receptor	Summary of Baseline Data	Further Survey Proposed to Inform the Baseline
	being two red kite records within Site 1(e) and numerous records of a number of bird species within Site 2(a), 2(b), 2(d), (3f) and CRC3. Habitats such as hedgerows, grassland field margins, riparian habitats along watercourses and small woodland coppices, within the Sites and CRC, are suitable to support a range breeding bird species. In addition, the larger arable fields have suitability for ground nesting species such as skylark.	Six survey visits per transect will be undertaken between late March and early July 2026. The survey methodology will follow good practice guidance¹⁹³. No targeted breeding bird surveys will be undertaken for the CRC as impacts will be temporary and there will be no significant losses of suitable habitats.
Barn owls	WaBRC and WoBRC returned no records of barn owls within 1 km of the Scheme. Habitats on the Sites and CRC, such as mature trees, small woodland coppices, pasture and field margins, have potential to support breeding, foraging and commuting barn owls.	During the breeding bird surveys and UKHab survey, habitats within the Sites and the CRC will be assessed for potential suitability for nesting, roosting or foraging barn owls, surveys will follow good practice guidance¹⁹⁴. Additionally, all trees and buildings within the Sites will be assessed from ground level for their suitability for nesting and roosting barn owl¹⁸⁴. This will be undertaken alongside the bat surveys. Depending on findings of the above surveys and risk to the features, further surveys may be required to determine whether nesting barn owl

¹⁹³ Bird Survey & Assessment Steering Group. (2023). Bird Survey Guidelines for assessing ecological impacts, v.1.1.1. Available at: <https://birdsurveyguidelines.org>

¹⁹⁴ Shawyer, C. R. (2011) 'Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment: Developing Best Practice in Survey and Reporting'. IEEM, Winchester.

Ecological Receptor	Summary of Baseline Data	Further Survey Proposed to Inform the Baseline
		are present or likely absent up to 175 m from the Scheme.
Non-breeding birds	WaBRC and WoBRC returned records of birds within 1 km of the Scheme, which have the potential to use the Sites and CRC and surrounding landscape for passage and overwintering, such as black-tailed godwit and green sandpiper. Habitats within the Sites and CRC have potential to support aggregations of non-breeding birds, such as corn bunting.	Non-breeding bird surveys within the Sites were undertaken in January and February 2026. A total of 66 bird species were recorded during the Survey Area during the surveys, of which 33 were priority species¹⁹⁵. An initial review of the results suggests that the assemblage recorded is fairly typical of the predominantly agricultural habitats present. The results indicate that the Survey Area does not provide a role in maintaining any SPA or Ramsar populations, and is not functionally linked to any SPA or Ramsar sites in the wider area (the closest of which is the Severn Estuary SPA and Ramsar Site located approximately 50 km south west of the Scheme and well beyond the desk study search area and Zol of the Scheme). Although the surveys did not cover the entirety of the non-breeding bird season (surveys were not undertaken in November and December), they are considered sufficient to capture the assemblage of non-breeding birds utilising the

¹⁹⁵ The priority species recorded were either listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), on the Birds of Conservation Concern Red or Amber lists, as a Species of Principal Importance in accordance with Section 41 of the NERC Act or listed on Annex I of the Birds Directive.

Ecological Receptor	Summary of Baseline Data	Further Survey Proposed to Inform the Baseline
		Sites, and further surveys in 2026 are not currently proposed. No targeted non-breeding bird surveys will be undertaken for the CRC as impacts will be temporary and there will be no significant losses of suitable habitats.
Hazel dormice	No hazel dormouse records were returned within 1 km of the Scheme during the desk study. In Worcestershire, hazel dormouse populations are mostly found on the western edge of the county throughout the Malvern Hills and into the Wyre Forest, which are located 26 km west and 30 km northwest of Sites and CRC, respectively. There are scattered, occasional records from elsewhere, with the closest recent record to the Scheme from the south of Worcester, almost 20 km away. Whilst there are records from closer to the Scheme (to the northeast of Redditch on the Warwickshire border), these are historic, unconfirmed records¹⁹⁶. In Warwickshire, Weston and Waverley Wood to the south of Coventry, over 30 km from the Scheme, is the only confirmed natural population of hazel dormice in the county. However, it is understood that no hazel dormice have been recorded here since 2013 (although it is hoped that a reintroduction	N/A.

¹⁹⁶ Worcestershire Biodiversity Partnership, Worcestershire Biodiversity Action Plan 2018, Hazel Dormouse Species Action Plan, Dormouse SAP

Ecological Receptor	Summary of Baseline Data	Further Survey Proposed to Inform the Baseline
	programme in 2017 at Princethorpe Woodlands, which is located near to Weston and Waverley Wood, as part of the Living Landscape Partnership Scheme will bolster the natural population). There have been three other releases of hazel dormice in Warwickshire since the 1990s. One of these was close to the natural population at Weston and Waverley Wood in 1998. Another was at Windmill Naps Wood just to the south of Birmingham, approximately 13 km north of the Scheme, where hazel dormice were released in 2009. The third was at Alne Wood, north of Alcester approximately 6.5 km northeast of the Scheme, where hazel dormice were released in 2012. Only the Windmill Naps Wood introduction appears to have been successful¹⁹⁷. Based on the lack of desk study records from within the search area, the rarity and localised nature of hazel dormice in Worcestershire and Warwickshire, and the distance and lack of connectivity to known hazel dormouse populations, hazel dormice are not considered to be present in the Scheme area, and they are scoped out of survey and assessment.	

¹⁹⁷ Warwickshire Dormouse Conservation Group (2017) The Status of the Hazel Dormouse (*Muscardinus avellanarius*) in Warwickshire, Coventry and Solihull in 2016. Available at: <https://www.exploredunsmore.org/wp-content/uploads/2018/04/The-Status-of-the-Hazel-Dormouse-in-Warwickshire-in-2016.pdf>

Ecological Receptor	Summary of Baseline Data	Further Survey Proposed to Inform the Baseline
Otters	WaBRC and WoBRC returned two records of otters within 1 km of the Scheme, the closet located 210 m northeast of CRC3. The majority of the Sites and CRC comprise arable land which is sub-optimal for otters. However, there are numerous watercourses, ditches and waterbodies with suitability for foraging and commuting otters within and adjacent to the Sites and CRC, and which are well connected to the wider landscape and River Arrow and River Avon. There is also suitable terrestrial habitat, such as woodland and tree lines along watercourses, which may provide opportunities for sheltering otters (including holts).	Watercourses, waterbodies, and suitable terrestrial habitat within and up to 200 m (where considered to be appropriate and where access can be secured) from the Sites and CRC will be surveyed for suitability and presence of otters, in line with current guidance¹⁹⁸. One survey will be undertaken at each suitable watercourse/ waterbody/ terrestrial habitat and is proposed to be undertaken in Spring 2026. Depending on the findings and risk to the features, further surveys may be required.
Water voles	WaBRC and WoBRC returned no water vole records within 1 km of the Scheme. The Warwickshire, Coventry & Solihull LNRS states that there is a population of water voles present within Noleham Brook, which is 100 m northeast of Site 3. A tributary of the Noleham Brook is located directly adjacent to Site 3. There are numerous watercourses, ditches and other waterbodies within and adjacent to Site that may have suitability for water voles.	Watercourse and waterbodies within and up to 100 m (where considered to be appropriate and access can be secured) from the Sites and CRC will be assessed for their suitability to support water voles. Surveys will follow good practice guidance¹⁹⁹. Depending on the findings and risk to the features, further surveys may be required to determine whether water voles are present or likely absent.

¹⁹⁸ Findlay & White (2026) The Otter Field Survey & Monitoring Handbook: A Practical Guide to Field and Camera-Trap Surveys

¹⁹⁹ Dean, M (2021) Water Vole Field Signs and Habitat Assessment: A Practical Guide to Water Vole Surveys

Ecological Receptor	Summary of Baseline Data	Further Survey Proposed to Inform the Baseline
		This would comprise two separate presence/ likely absence visits, one early season (mid-April to June) and one late season (July to September). Each survey visit would be undertaken at least two months apart.
Beaver	WaBRC and WoBRC returned no beaver records within 1 km of the Scheme. There are numerous watercourses, ditches and other waterbodies within and adjacent to Sites and CRC that have suitability for beavers which are well connected to the River Arrow and River Avon. No known beaver reintroductions have been confirmed in Warwickshire²⁰⁰. Beavers have been reintroduced in a fenced area in the Wye Forest 30 km from the Scheme in Worcestershire.	Beaver are considered unlikely to be present within the Scheme area. However, a survey to check for beaver field signs will be undertaken in combination with the other survey. The survey will follow good practice guidance ²⁰¹ .
Widespread reptile species	WaBRC and WoBRC returned grass snake records within 1 km of the Scheme, the closest being located 340 m from Site 3(g). No records of other reptile species were provided. The arable and grassland pasture fields within the Sites and CRC are generally considered to be of low suitability for reptiles due to the limited vegetation cover and levels of disturbance from agricultural management. Hedgerows, arable field margins and	Following the completion of the UKHab survey, an assessment of the habitats to support widespread reptile species will be undertaken. Where suitable habitat for reptiles could be impacted by the Scheme, presence/ likely absence surveys may be undertaken to inform mitigation. Regardless, mitigation measures to avoid/minimise impacts on reptiles will be put in place in the oCEMP and EPMS including the

²⁰⁰ Warwickshire Wildlife Trust (2026) Beavers in Warwickshire. Available at: <https://www.warwickshirewildlifetrust.org.uk/beavers>

²⁰¹ Campbell Palmer et al. (2016) The Eurasian Beaver Handbook: Ecology and Management of Castor fiber. Pelagic Publishing.

Ecological Receptor	Summary of Baseline Data	Further Survey Proposed to Inform the Baseline
	small woodland coppices provide suitable terrestrial habitat for widespread species of reptiles. Ponds also support foraging habitat for grass snake.	implementation of precautionary working methods. Depending on the findings of the UKHab survey, it is the current expectation that additional reptile surveys would not be required.
Other priority mammals	WaBRC and WoBRC returned records of brown hares, hedgehogs and polecats within 1 km of the Scheme, the closest being brown hare within Sites 2(a) and 2(d). Habitats on the Sites and CRC such as grassland field margins, hedgerows and small woodland coppices have potential to support other priority mammals, such as brown hares, hedgehogs and polecats.	Following the completion of the UKHab survey, an assessment of the habitats to support other priority mammals will be undertaken. Further survey for other priority species is not proposed at this stage, but the potential for significant impacts to arise on these species will be considered as appropriate.
Terrestrial invertebrates	WaBRC and WoBRC returned numerous records of notable terrestrial invertebrates within 1 km of the Scheme. Records include purple emperor butterfly, brown hairstreak butterfly and white-letter hairstreak butterfly which are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). White-letter hairstreak was recorded within Site 2(d) and Site 3(g). Brown hairstreak has been recorded within CRC1. The arable habitats within the Sites and CRC are common and widespread in the local area and are unlikely to be of high importance for notable invertebrate species. Habitats within the Sites and CRC such as field margins, hedgerows, small woodland coppices, large	Following the completion of the UKHab survey, an assessment of the suitability of the habitats within the Sites and CRC to support priority terrestrial invertebrates will be undertaken. Where habitats that have potential to support priority terrestrial invertebrate assemblages are present, and could be significantly impacted by the Scheme, further surveys may be undertaken. These would be completed with reference to the appropriate survey methodology for the invertebrate group(s).

Ecological Receptor	Summary of Baseline Data	Further Survey Proposed to Inform the Baseline
	trees, dead trees/ sources of deadwood and scrub have potential to support notable invertebrates.	
White-clawed crayfish	WaBRC and WoBRC returned no white-clawed crayfish records within 1 km of the Scheme. Watercourses and waterbodies within and adjacent to the Sites and CRC have potential to support white-clawed crayfish.	White clawed crayfish have been scoped out (see Table 6-4 for justification). No further surveys are proposed.
Watercourse habitats	The desk study identified nine watercourses within 150 m of the Sites and CRC; six Main Rivers (River Avon, River Arrow, Piddle Brook, Ban Brook, Littleton Brook, and Noleham Brook) and three ordinary watercourses. The other watercourses within the Study Area are field drainage ditches and small streams. Within 2 km of the Sites and CRC, there are several additional watercourses which receive flow from the watercourses identified within 150 m of the Sites and CRC. The only Main Rivers within this wider 2 km Study Area for hydrologically connected watercourses are Bow Brook, Whitsun Brook, Broadway Brook, and Bretforton Brook. All watercourses present in the Study Area fall within the Avon-Midlands West, Avon Rural Rivers and Lakes, and Avon Urban Rivers and Lakes WFD Operational Catchments.	Modular river physical surveys (MoRPh) will be undertaken for watercourses within the Sites and CRC boundaries. MoRPh surveys will only be undertaken on watercourses more distant from the Sites and CRC within the Study Area if impact pathways to the feature are identified. MoRPh surveys shall be aligned with key points of interaction with the Scheme e.g. at access route or CR crossing locations. Survey effort shall align with BNG guidance¹⁶⁵ and will survey at least 20% of the total length of the watercourse within the boundary unless agreed otherwise with the relevant LPA and statutory bodies. MoRPh surveys can be undertaken at any time of year although best completed in May and September when aquatic vegetation is clearly apparent, but not too developed that it obscures view of the channel. Surveys should not be

Ecological Receptor	Summary of Baseline Data	Further Survey Proposed to Inform the Baseline
	The WFD waterbodies within the Study Area range from being at Poor to Moderate overall status. Reasons for Not Achieving Good (RNAG) for these water bodies are predominantly related to phosphate pollution resulting from poor livestock management (diffuse source) and sewage discharge (point source).	undertaken under low flow or high flow conditions.
Lake Habitats	There was no record of lakes within the Study Area during the desk study.	N/A.
Pond Habitats	The desk study identified approximately 160 ponds within 150 m of the Scheme. Of these, 14 were larger ponds with established marginal vegetation present in aerial imagery, which could have the potential to support notable fish, aquatic macroinvertebrates and macrophytes. The remaining ponds were small farm ponds.	Other than surveys of ponds as part of the UKHab survey and for GCN (described above), no further pond surveys are anticipated at this stage given that all ponds will be retained with an appropriate buffer. Furthermore, habitat connectivity between ponds is not expected to be adversely impacted as a result of the Scheme.
Fish	The Environment Agency Ecology & Fish Data Explorer returned records of brown/sea trout and European eel for the nine watercourses within the Study Area. There was no record of salmon or sea lamprey within the watercourses present in the 150 m or the wider 2 km area.	Fish have been scoped out (see Table 6-4 for justification). No further surveys are proposed.
Aquatic macro-invertebrates	The desk study has identified several watercourses and standing waterbodies within the Study Area, which have the potential to support notable communities of aquatic macroinvertebrates.	Aquatic macro-invertebrates have been scoped out (see Table 6-4 for justification). No further surveys are proposed.

Ecological Receptor	Summary of Baseline Data	Further Survey Proposed to Inform the Baseline
Aquatic Macrophytes	Aerial imagery shows established vegetation present on watercourses and standing waterbodies within and adjacent to the Scheme and CRC.	Aquatic macrophytes have been scoped out (see Table 6-4 for justification). No further surveys are proposed.

6.4 Assessment Methodology

- 6.4.1 The ecological assessment will contain a detailed ecology baseline, which will be produced following the completion of the ecology field surveys outlined in Table 6-1 above. In addition, information provided by relevant statutory bodies and interested parties during the ongoing consultation and engagement process for the Scheme, including the Scoping Opinion, will be reviewed and included in the ecological assessment where appropriate.
- 6.4.2 Whilst the majority of the desk study has been completed, an update to the desk study will be undertaken to assess the value of aquatic receptors in the Study Area and review any data that was not available at the time of writing this report or which require further detailed interpretation.
- 6.4.3 Once the baseline has been established following the completion of the ecology field surveys, an ecological impact assessment will be undertaken, based on the Guidelines for Ecological Impact Assessment in the UK and Ireland produced by the CIEEM¹⁶⁴.
- 6.4.4 The first stage of the assessment is determining value/nature conservation importance of the ecological receptors that have been identified within the baseline. The nature conservation importance or potential importance of an ecological feature will be determined within the following geographic context: International, National, Regional, County, Local and Scheme. A further 'Negligible' category will be assigned to features of no particular intrinsic nature conservation importance.
- 6.4.5 The Zol is an area within which ecological features may be subject to biophysical changes as a result of the Scheme. Throughout the assessment process the Zol will be regularly reviewed based on further understanding of the Scheme's impacts and on the results of the desk study, field surveys and consultation.
- 6.4.6 Ecological features of 'Local' level or above will be classified as IEFs. In line with the guidelines set out by CIEEM, the impacts of the Scheme will only be assessed on IEFs, ensuring that the assessment focuses only on those impacts which are potentially significant. Habitats or species which are present for which there may be a potential breach of legislation will be considered to be IEFs, even if the feature itself is not considered to be of significant intrinsic nature conservation importance. Such features may still warrant consideration within the design of the Scheme, or may require mitigation measures to be implemented to ensure legal compliance. This will be set out in the ES as appropriate.

- 6.4.7 Where impacts are identified, details will be provided within the assessment to characterise these in terms of their extent and magnitude, duration, frequency and timing, and reversibility. Both positive and negative impacts will be considered. Impacts will also be characterised in terms of how they occur, i.e. direct, indirect secondary or cumulative. Impacts can be permanent or temporary. The potential impacts that could occur as a result of the Scheme are discussed in Section 6.6 of this report.
- 6.4.8 The assessment of potential impacts will be undertaken with the inclusion of embedded mitigation for the Scheme. Residual impacts identified will consider any additional mitigation measures required. An assessment will be made of the significance of residual effects, i.e. the significance of the effects that are predicted to remain after the implementation of all committed mitigation measures.
- 6.4.9 The significance of the effect will be determined using the approach set out in Section 2.3 of this report, modified to comply with the CIEEM guidelines.
- 6.4.10 Cumulative effects of consented or emerging development projects in the area will be assessed (Chapter 16) with reference to CIEEM guidelines. The assessment will consider the need for further mitigation or compensation for important ecological features, and any likely residual effects.
- 6.4.11 If land within the Scheme boundary is determined to be functionally linked²⁰² to an international statutory designated site for nature conservation, then a Habitats Regulations Assessment (HRA) is likely to be required. The HRA would include a Stage 1 Screening Assessment to determine whether the Scheme is likely to have a significant effect on any identified international statutory designated site for nature conservation.
- 6.4.12 If likely significant effects cannot be ruled out, the HRA will also include a Stage 2 Appropriate Assessment. The Appropriate Assessment would provide detailed consideration of potential effects of the Scheme in relation to the conservation objectives of relevant sites to determine if there is likely to be an adverse effect on the integrity and detail appropriate avoidance and mitigation measures where required. The HRA would follow good practice guidance and case law.

²⁰² Functional linkages include key flyways, foraging areas, breeding or roost sites. Although core ranges of species can vary from very short distances to tens of kilometres or more, for inland sites in this region a distance of 20 km is considered to be sufficient and precautionary in this instance.

- 6.4.13 The Environment Act 2021 contains provisions that require that at least a 10% net gain for biodiversity be demonstrated through a BNG assessment (using the Statutory Biodiversity Metric). These provisions are not currently in force for NSIPs, however, it is currently expected that it will become mandatory from May 2026. A BNG assessment will form part of the Ecology and Biodiversity ES chapter in compliance with the Environment Act 2021.

6.5 Embedded Mitigation

- 6.5.1 The principles of the mitigation hierarchy will be adopted and used when considering impacts on ecological receptors. The mitigation hierarchy¹⁶⁴ consists of the following sequential steps:
- Avoidance: Seek options that avoid harm to ecological features (for example, by locating on an alternative site);
 - Mitigation: Negative effects should be avoided or minimised through mitigation measures, either through the design of the Scheme or subsequent measures that can be guaranteed (for example, through a condition or planning obligation);
 - Compensation: Where there are significant residual negative ecological effects despite the mitigation proposed, these should be offset by appropriate compensatory measures; and
 - Additionally, projects should seek to provide enhancements which are net benefits for biodiversity over and above the requirements for avoidance, mitigation or compensation.
- 6.5.2 The following embedded mitigation measures will be incorporated into the design of the Scheme to avoid and protect important ecological features (IEFs), so far as is achievable.
- 6.5.3 Principally the Scheme will aim to retain and protect habitats and species that are of greater ecological value with appropriate buffers between infrastructure development and sensitive habitats/features. The extent of buffers will be determined by the sensitivity of the feature, the proposals in that area, industry best practice standards and prevailing guidance, as well as the outcome of survey work and following consultation with stakeholders.
- 6.5.4 The following measures will be incorporated into the design of the Scheme:
- Species-specific buffer zones will be adopted where required (e.g. around badger setts and/ or features with potential to support roosting bats), and further detailed information will be provided within the ES;
 - All ponds will be retained and protected with an appropriate buffer;

- Whilst some ditch and watercourse crossings will be required for cables and access tracks, new watercourse or ditch crossings will be avoided as far as practicable by utilising existing crossing points, or minimised and sensitively designed to allow the continued movement of wildlife along the watercourses or ditch. In other areas, a minimum buffer of 10 m from watercourses and ditches will be applied;
- Whilst some hedgerow crossings will be required for cables and access tracks, new crossings will be avoided as far as practicable by utilising existing access points. In other areas, a minimum buffer of 5 m from hedgerow/ field boundaries will be applied;
- Mature trees will be avoided as far as practicable by micro-siting works. A minimum buffer of 5 m around individual mature trees (from the edge of the canopy) will be applied to ensure protection of the root zone and canopy. For any ancient or veteran trees, this buffer will be extended to a minimum of 15 m from the edge of the tree's canopy. These distances will be refined as necessary in accordance with advice from an arboriculturalist;
- A minimum buffer of 10 m from tree lines (from the edge of the canopy) and small groups of trees will be applied. This will be extended to 15 m from woodlands, including ancient woodlands;
- Gaps in security fencing will be installed to allow access by badgers and other mammal species;
- Standard measures for pollution prevention and dust management will be implemented, to be secured in the relevant management plans; and
- Trenchless cable installation, including via Horizontal Directional Drilling (HDD), will be used for the CRC to avoid direct impacts to watercourses where practicable.

6.5.5 Full details of mitigation embedded within the design, or essential mitigation measures needed to address potentially significant effects or to ensure legal compliance, will be informed by the outcome of the ecological surveys and provided within the ES. These will be secured by:

- The provision of an ecologically-informed oLEMP which will include details regarding the creation and management of habitats of ecological value which are appropriate to the local area. This will be with the aim of delivering a net gain for biodiversity and improving habitat connectivity with the wider landscape; and
- The implementation of an oOEMP, and oDEMP to capture all committed mitigation and to ensure legal compliance during construction, operational and decommissioning periods.

6.6 Likely Significant Effects

6.6.1 The following types of impacts have been identified as potentially occurring during the various stages of the Scheme, which may result in significant effects to ecological receptors.

6.6.2 Having regard to the characteristics of the Site and the surrounding area, in the absence of mitigation, the construction of the Scheme has the potential to result in the following effects:

- Habitat loss: including loss of land comprising habitats that plants and animals rely on, and loss of the habitats themselves. This is likely to be predominantly loss of arable and grassland pasture, with some minor loss of hedgerow and grassland field margins;
- Temporary habitat loss: including land used during construction that is subsequently to be restored. This is likely to be predominantly loss of arable and grassland pasture, with some minor loss of hedgerow and grassland field margins cleared for construction processes (laydown areas and compounds) and where underground cables cross;
- Habitat damage / degradation: Direct and indirect damage to retained features such as trees, and hedgerows adjacent to works from soil compaction or damage from vehicles;
- Disturbance of species within the Scheme and in retained habitats adjacent to the Scheme, from noise, light, vibration and the presence of vehicles and people;
- Damage, destruction, killing or injuring of protected and priority species and their habitats such as badger setts and active bird nests; and
- Contamination / pollution: Potential ground, water and air pollution from spillages, dust and vehicles resulting in reduced habitat quality and impacts on species.

6.6.3 In the absence of mitigation, the operation of the Scheme has the potential to result in the following effects:

- Fragmentation of habitats and species populations: indirect impacts of the Scheme causing barrier effects to certain species such as from security fencing or installation of built infrastructure;
- Disturbance of species within the Sites and in retained habitats adjacent to the Sites, from noise, light and the presence of vehicles and people. The operational management is likely to be infrequent and localised, and unlikely to be significant. Replacement of panels and batteries during the operational phase could potentially result in higher levels of disturbance.

- Changes to foraging and commuting behaviours within the Sites: Installation of solar arrays could result in avoidance/ attraction to bats, birds, and invertebrate species.

6.6.4 There is also potential for a number of beneficial effects on biodiversity to arise from the Scheme. Cessation of intensive agricultural practices within the Sites may result in benefits to ecological receptors, including:

- Conversion of areas of arable land underneath solar arrays to permanent grassland and habitat creation or enhancement elsewhere such as woodland and hedgerows;
- Halting the application of chemical herbicides and pesticides on previously arable areas is likely to result in increased botanical and invertebrate diversity across all of the Sites;
- Limiting the application of fertilizers may reduce the build-up of nutrients within the soils, which would result in increased botanical diversity by encouraging less competitive grasses and herbaceous species to establish;
- Limited chemical and fertilizer application may also reduce the possibility for additional run-off into watercourses within and connected to the Sites.

6.6.5 Potential impacts during decommissioning are likely to be similar to those during construction. However, the Scheme biodiversity baseline will have changed during the operational phase and would be likely to support a range of habitats and species requiring consideration. Further survey work would likely be required in advance of decommissioning to determine the baseline and provide appropriate recommendations for mitigation/ compensation.

Consideration of Effects

6.6.6 Taking into consideration the preliminary baseline information, potential impacts through construction, operational and decommissioning phase, and taking into account the embedded mitigation, the known and/ or potential ecological receptors present within the Zol that are Scoped In/ Scoped Out of the assessment within the ES are shown in Table 6-2 below, with a justification for the approach. Ecological receptors that are scoped out of the assessment within the ES have been scoped out on the basis that likely significant effects are not anticipated. However, details of appropriate mitigation will be included, where necessary, within the ES to ensure legal compliance with relevant legislation.

Table 6-2 Ecology Receptors Scoped In/ Out of assessment within the ES

Ecological Receptors	Construction Phase and panel/battery replacement	Operational Phase (routine maintenance)	Decommissioning Phase	Rationale
Statutory Designated Sites within 2 km of the Sites and CRC	Scoped In	Scoped In	Scoped In	Potential for indirect impacts through pollutants and disturbance to species that utilise the habitat.
Statutory Designated Sites greater than 2 km from the Sites and CRC	Scoped Out	Scoped Out	Scoped Out	It is not deemed likely that designated sites beyond 2 km are at risk of any effects from the Scheme due to separation distances and lack of impact pathways beyond 2 km. There are no international designated sites within 10 km and no international designated sites that are designated for bats and migratory birds within 30 km, and it is highly unlikely that the Scheme would be utilised by qualifying species of any international designated sites beyond these distances. The results of the wintering bird surveys indicate that the Survey Area does not provide a role in maintaining any SPA or Ramsar populations, and is not functionally linked to any SPA or Ramsar sites in the wider area. At this stage, it is proposed that a formal HRA Screening report will not be required, but this will be continually reviewed as survey data is collected and analysed.
Non-statutory designated sites within 1 km of the Sites and CRC	Scoped In	Scoped In	Scoped In	Potential for indirect impacts through pollutants and disturbance to species that utilise the habitat.
Non-statutory designated sites	Scoped Out	Scoped Out	Scoped Out	It is not deemed likely that non-statutory designated sites beyond 1 km are at risk of any effects from the Scheme due to

Ecological Receptors	Construction Phase and panel/battery replacement	Operational Phase (routine maintenance)	Decommissioning Phase	Rationale
greater than 1 km of the Sites and CRC				separation distances and lack of impact pathways beyond 1 km.
Ancient Woodland and veteran trees within 500 m of the Sites and CRC	Scoped In	Scoped In	Scoped In	Potential for indirect impacts through pollutants and disturbance to species that utilise the habitat.
Ancient Woodland and veteran trees greater than 500 m of the Sites and CRC	Scoped Out	Scoped Out	Scoped Out	It is not deemed likely that Ancient Woodland or veteran trees beyond 500 m are at risk of any effects from the Scheme due to the distances and lack of impact pathways beyond 500 m.
Terrestrial habitat (including priority habitats, and priority/protected plant species) within and up to 50 m of the Sites and CRC	Scoped In	Scoped Out	Scoped In	Construction activities may lead to detrimental impacts on habitats through loss or damage during construction activities. Any operational impacts are limited to periodic maintenance visits and replacement activities, considered to have a minor impact; the provision of precautionary avoidance measures will be provided within the OEMP. Impacts beyond 50 m are considered unlikely and are therefore scoped out across all phases. There would not be any impacts to habitats beyond 50 m.
Amphibians (including GCN) within and up to 250 m of the Sites and CRC	Scoped In	Scoped Out	Scoped In	A number of ponds are present within and up to 250 m from the Sites and CRC and therefore the Scheme boundary has potential to support a population for great crested newts and other common amphibians. The construction and decommissioning of the Scheme may result in impacts to terrestrial habitats utilised by amphibians, including great

Ecological Receptors	Construction Phase and panel/battery replacement	Operational Phase (routine maintenance)	Decommissioning Phase	Rationale
				crested newts. Direct impacts to great crested newt breeding ponds are not anticipated as there will be no loss of ponds as a result of the Scheme. Any operational impacts are limited to periodic maintenance visits, considered to have a minor impact; and replacement activities, which are considered to result in effects no greater than the construction phase; the provision of precautionary avoidance measures will be provided within the oOEMP.
Bats (roosting) within and up to 50 m of the Sites and CRC	Scoped In	Scoped Out	Scoped In	Direct impacts to potential bat roost features are likely to be avoided through embedded mitigation. There is potential for indirect impacts through disturbance during construction activities (noise, vibration, lighting). Any operational impacts are limited to periodic maintenance visits, considered to have a minor impact; and replacement activities, which are considered to result in effects no greater than the construction phase; the provision of precautionary avoidance measures will be provided within the oOEMP..
Bats (commuting and foraging) within the Sites	Scoped In	Scoped Out	Scoped In	Habitats with increased suitability for foraging and commuting bats will largely be retained, although there may be some minor loss. There is the potential for disturbance to foraging and commuting bats during construction. Any operational impacts are limited to periodic maintenance visits, considered to have a minor impact; and replacement activities, which are considered to result in effects no greater

Ecological Receptors	Construction Phase and panel/battery replacement	Operational Phase (routine maintenance)	Decommissioning Phase	Rationale
				than the construction phase; the provision of precautionary avoidance measures will be provided within the oOEMP.
Bats (commuting and foraging) within the CRC	Scoped Out	Scoped Out	Scoped Out	Impacts will be temporary and there will be no significant losses of suitable habitats as the working area will be more restricted than within the Sites. Additionally, due to the nature of the cables being subterranean, there is not expected to be any significant permanent loss of commuting and foraging habitats within the CRCs. Precautionary avoidance measures will be provided within the CEMP, OEMP and DEMP, including no night-time working, to ensure compliance with relevant legislation.
Badgers within and up to 30 m of the Sites and CRC	Scoped Out	Scoped Out	Scoped Out	Badgers are protected primarily for welfare reasons, and the species is not one of nature conservation concern. For this reason, they are scoped out of the assessment within the ES. Appropriate mitigation measures will be included within ES to ensure legal compliance, with the provision of precautionary avoidance measures provided within the CEMP, OEMP and DEMP.
Breeding birds within the Sites	Scoped In	Scoped Out	Scoped In	Habitat loss within the Scheme has potential to result in destruction of individual nests and loss of areas of suitable nesting habitat for ground nesting birds. Embedded mitigation will reduce the potential impacts to birds that utilise hedgerows and trees for nesting. Any operational impacts are limited to periodic maintenance visits, considered to have a minor impact; and replacement

Ecological Receptors	Construction Phase and panel/battery replacement	Operational Phase (routine maintenance)	Decommissioning Phase	Rationale
				activities, which are considered to result in effects no greater than the construction phase; the provision of precautionary avoidance measures will be provided within the oOEMP.
Breeding birds within the CRC	Scoped Out	Scoped Out	Scoped Out	Impacts will be temporary and there will be no significant losses of suitable habitats. Precautionary avoidance measures will be provided within the CEMP, OEMP and DEMP to ensure compliance with relevant legislation.
Barn owls within and up to 175 m from the Sites and CRC	Scoped In	Scoped Out	Scoped In	Potential impacts to barn owl through disturbance from construction activities (noise, vibration, light, visual). Direct impacts to barn owl and suitable breeding features will be avoided through embedded mitigation. Any operational impacts are limited to periodic maintenance visits, considered to have a minor impact; and replacement activities, which are considered to result in effects no greater than the construction phase; the provision of precautionary avoidance measures will be provided within the oOEMP.
Non-breeding birds within the Sites	Scoped In	Scoped Out	Scoped In	Potential for the loss of habitats and disturbance to wintering bird assemblages during construction and decommissioning phases of the scheme where wintering birds will likely avoid active construction sites. Habitat retention and enhancement will result in overall gains for wintering bird assemblages, increasing opportunities for winter foraging during operation.

Ecological Receptors	Construction Phase and panel/battery replacement	Operational Phase (routine maintenance)	Decommissioning Phase	Rationale
Non-breeding birds within the CRC	Scoped Out	Scoped Out	Scoped Out	Impacts will be temporary and there will be no significant losses of suitable habitats. Precautionary avoidance measures will be provided within the CEMP, OEMP and DEMP.
Hazel dormice within the Sites and CRC	Scoped Out	Scoped Out	Scoped Out	Not considered to be present within the Scheme and therefore will not be subject to any impacts.
Otters within and up to 200 m from the Sites and CRC	Scoped In	Scoped Out	Scoped In	Potential impacts to otter through disturbance from construction activities (noise, vibration, light, visual). Direct impacts to otter and otter resting sites will be avoided through embedded mitigation. Any operational impacts are limited to periodic maintenance visits, considered to have a minor impact; and replacement activities, which are considered to result in effects no greater than the construction phase; the provision of precautionary avoidance measures will be provided within the oOEMP.
Water voles within and up to 10 m of the Sites and CRC	Scoped In	Scoped Out	Scoped In	Water voles are potentially present within watercourses within the Scheme. Embedded mitigation (water course and ditch buffers and standard best practice construction measures including pollution prevention measures) will ensure impacts to the majority of these watercourses are avoided. However, there may be some localised impacts to watercourses, most of which will be temporary, for the construction of the CRC and access for construction of the Sites. Any operational impacts are limited to periodic maintenance visits, considered to have a minor impact; and replacement

Ecological Receptors	Construction Phase and panel/battery replacement	Operational Phase (routine maintenance)	Decommissioning Phase	Rationale
				activities, which are considered to result in effects no greater than the construction phase; the provision of precautionary avoidance measures will be provided within the oOEMP.
Beavers within the Sites and CRC	Scoped Out	Scoped Out	Scoped Out	At this stage, presence of beaver is considered unlikely due to there being no known releases within the wider area. Therefore, beaver are scoped out of assessment in the ES. However, any evidence of beaver will be recorded during the other surveys, and beavers scoped in as necessary.
Widespread reptile species within the Sites and CRC	Scoped Out	Scoped Out	Scoped Out	Although assumed to be present within the Scheme in low numbers, any populations will be concentrated within habitats (hedgerows, field margins, small woodland coppices) that will largely not be impacted by the Scheme. Where impacts to these habitats occur, these will be localised and the majority will be temporary. Widespread species of reptile are scoped out of the assessment within the ES as significant effects are not anticipated. Appropriate mitigation measures will be included within ES to ensure legal compliance, with the provision of precautionary avoidance measures provided within the CEMP, OEMP and DEMP. This will be reviewed as surveys are undertaken and as the design progresses and reptiles will be scoped in if larger areas of suitable habitat for widespread species of reptile are recorded during the UKHab surveys and if infrastructure and

Ecological Receptors	Construction Phase and panel/battery replacement	Operational Phase (routine maintenance)	Decommissioning Phase	Rationale
				construction areas (or associated habitat clearance activities) are located within any larger areas of suitable habitat.
Other priority mammals within the Sites and CRC	Scoped Out	Scoped Out	Scoped Out	Although species such as brown hare and hedgehog are assumed to be present within the Scheme, the majority of the most value habitats to these species will be retained (hedgerows, field margins, small woodland coppices). Where impacts to these habitats occur, these will be localised and the majority will be temporary. Other priority mammals are scoped out of the assessment within the ES as significant effects are not anticipated. Appropriate mitigation measures will be included within the ES to ensure legal compliance, with the provision of precautionary avoidance measures provided within the CEMP, OEMP and DEMP.
Terrestrial invertebrates within the Sites and CRC	Scoped In	Scoped Out	Scoped In	Habitat loss within the Scheme has potential to result in destruction of suitable habitats for invertebrates. However, embedded mitigation will ensure the majority of suitable habitats will be retained through construction, or limited to temporary impacts only. Any operational impacts are limited to periodic maintenance visits, considered to have a minor impact; and replacement activities, which are considered to result in effects no greater than the construction phase; the provision of precautionary avoidance measures will be provided within the oOEMP.

Ecological Receptors	Construction Phase and panel/battery replacement	Operational Phase (routine maintenance)	Decommissioning Phase	Rationale
White-clawed crayfish within the Sites and CRC	Scoped Out	Scoped Out	Scoped Out	White-clawed crayfish are potentially present within watercourses within the Scheme boundary. Embedded mitigation (watercourse and ditch buffers and standard best practice construction measures including pollution prevention measures) will ensure impacts to these watercourses are avoided as far as practicable. As set out in Chapter 5 (Section 5.7) the necessary mitigation will be secured through the oCEMP, oOEMP, and oDEMP to ensure significant adverse effects do not occur. Any operational impacts are limited to periodic maintenance visits, considered to have a minor impact; and replacement activities, which are considered to result in effects no greater than the construction phase; the provision of precautionary avoidance measures will be provided within the oOEMP.
Watercourses Habitats	Scoped Out	Scoped Out	Scoped Out	Present on/adjacent to the Sites and CRC. Embedded mitigation (watercourse and ditch buffers and standard best practice construction measures including pollution prevention measures) will be provided within the oCEMP, oOEMP, and oDEMP and will ensure that impacts to these watercourses are avoided as far as practicable.
Lake Habitats	Scoped Out	Scoped Out	Scoped Out	Not present on/adjacent to the Sites and CRC or impacted.
Pond Habitats	Scoped Out	Scoped Out	Scoped Out	Present on/adjacent to the Sites and CRC and have potential to be impacted. Embedded mitigation (buffers and standard best practice construction measures including pollution

Ecological Receptors	Construction Phase and panel/battery replacement	Operational Phase (routine maintenance)	Decommissioning Phase	Rationale
				prevention measures) will be provided within the oCEMP, oOEMP, and oDEMP and will ensure that impacts to these ponds are avoided.
Fish	Scoped Out	Scoped Out	Scoped Out	Notable/important communities potentially present in watercourses and standing waterbodies on/adjacent to the Sites and CRC. As set out in Chapter 5 (Section 5.7) the necessary mitigation will be secured through the oCEMP, oOEMP, and oDEMP to ensure significant adverse effects do not occur.
Aquatic Macroinvertebrates	Scoped Out	Scoped Out	Scoped Out	Notable/important communities potentially present in watercourses and standing waterbodies on/adjacent to the Sites and CRC. As set out in Chapter 5 (Section 5.7) the necessary mitigation will be secured through the oCEMP, oOEMP, and oDEMP to ensure significant adverse effects do not occur.
Aquatic Macrophytes	Scoped Out	Scoped Out	Scoped Out	Notable/important communities potentially present in watercourses and standing waterbodies on/adjacent to the Sites and CRC. As set out in Chapter 5 (Section 5.7) the necessary mitigation will be secured through the oCEMP, oOEMP, and oDEMP to ensure significant adverse effects do not occur.

6.7 Assumptions and Limitations

- 6.7.1 Wintering bird surveys have been undertaken over the 2025 / 2026 winter, but no other detailed ecological field surveys have been undertaken for the Scheme at this stage. The identification of potential ecological receptors has been undertaken using results of the desk study, a scoping walkover and applying professional judgment. The surveys may highlight new important ecological features with potential to be significantly affected which have not been identified (or considered not to be significant) at this stage of the assessment.
- 6.7.2 WaBRC and WoBRC records are not exhaustive, and the absence of records does not necessarily demonstrate the absence of a species.
- 6.7.3 All aquatic habitats and species scoping has been undertaken based on desk study only.
- 6.7.4 The CRC is an area of search within which the CR will be located. It should therefore be treated as indicative only at this stage and will be refined during the development of the Scheme.

6.8 Conclusions on Scoping

- 6.8.1 A number of ecological receptors have been scoped in to the EIA for further assessment (See Table 6-2 for details). A number of ecological field surveys in relation to the matters scoped in have been proposed to establish the baseline (See Section 6.3). Once the baseline has been established, an assessment of impacts and likely significant effects (See Section 6.5) will be carried out and detailed within the Ecology and Biodiversity chapter of the ES.

7 Ground Conditions and Contamination

7.1 Introduction

- 7.1.1 This section sets out the proposed scope for the ground conditions and contamination assessment. It provides a summary of the ground conditions and potential contamination relevant to the Scheme, outlines the proposed assessment methodology and identifies potential impacts and proposed mitigation measures.
- 7.1.2 The ground conditions and contamination assessment has been undertaken in line with guidance provided in DMRB LA109, Geology and Soils guidance²⁰³.
- 7.1.3 The following aspects have been considered in this scoping assessment:
- Effects on geology: bedrock geology and superficial deposits, including geological designations and sensitive / valuable non-designated features; and
 - Effects from contamination on human health, surface water and groundwater receptors.
- 7.1.4 Although not required to be assessed as part of DMRB LA109 guidance, identification of geohazards has been included in the baseline of this scoping report. Potential effects have been considered; however, full assessment would be undertaken as part of design specific geotechnical ground investigation and risk assessment, as required to inform the detailed design in accordance with CD 622 Managing geotechnical risk²⁰⁴.
- 7.1.5 This chapter has links with other environmental topics:
- Effects associated with water quality (surface water and groundwater) are provided in Chapter 5 (Section 5.7 Water Environment);
 - Effects associated with loss of soil resources / soil functions including loss and physical effects such as structural damage and compaction are provided in Chapter 8 (Soils and Agriculture);
 - Effects associated with mineral resource sterilisation are provided in Chapter 5 (Section 5.2 Waste and Materials); and
 - Effects associated with landform are reported in Chapter 0 (Landscape and Visual).

²⁰³ National Highways, DMRB Manual: LA109 Geology and Soils, Revision 0, 2019

²⁰⁴ National Highways, CD622: Managing Geotechnical Risk, V2, 2025

7.2 Legislation, Policy and Guidance

7.2.1 This section presents the legislation, policy and guidance relevant to the ground conditions and contamination assessment.

7.2.2 A list of the relevant legislation is set out below:

- Part IIA of the Environmental Protection Act 1990³⁸
- The Environment Act 2021⁹
- Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009¹¹³
- The Control of Substances Hazardous to Human Health Regulations 2002 (as amended)²⁰⁵
- CDM Regulations 2015⁷¹
- The Environmental Permitting (England and Wales) Regulations 2016⁴³
- Water Environment (WFD) (England and Wales) Regulations 2017¹¹⁸ which transposes the WFD into UK law

7.2.3 A list of the relevant national and local policy is set out below:

- NPPF 2025¹⁸
- Overarching NPS for energy (EN-1), 2025¹³
- NPS for renewable energy infrastructure (EN-3), 2025¹⁴
- South Worcestershire Development Plan, adopted February 2016²⁴
- Stratford-on-Avon District Core Strategy 2011 to 2031, adopted 2016²⁵
- ReBC, Borough of Redditch Local Plan No.4, adopted 2017²³

7.2.4 A list of the relevant guidance is set out below:

- ISEP Guidance relating to Solar PV on Agricultural Land²⁰⁶
- PPG 2023¹⁹
- Department for Environment, Food and Rural Affairs (Defra) Contaminated Land Statutory Guidance 2012²⁰⁷
- DMRB LA104³⁴
- DMRB LA109¹⁹³

²⁰⁵ United Kingdom Parliament, The Control of Substances Hazardous to Human Health Regulations (SI 2002/2677), 2002 (as amended). Available at: <https://www.legislation.gov.uk/uksi/2002/2677>

²⁰⁶ ISEP (2026) Solar PV on Agricultural Land. Available at: <https://www.isepglobal.org/resources/blogs/2026/january/new-isep-advice-note-protecting-agricultural-land-while-powering-the-future/>

²⁰⁷ Department for Environment Food and Rural Affairs, Environmental Protection Act 1990: Part 2A. Contaminated Land Statutory Guidance, April 2012.

7.3 Baseline Conditions

Study area

- 7.3.1 To consider the effects on geology, the Study Area is the Red Line Boundary of Site 1 to Site 4 and the CRC1 to CRC7 (the Site).
- 7.3.2 To consider the effects associated with land contamination, the Study Area includes the Site plus land immediately beyond it, to a distance of up to 500m (off-site). This buffer is considered appropriate for identifying historical and current potentially contaminative land uses, which may have resulted in contamination within the Site, and the location of sensitive off-site receptors, which may be affected by the Scheme.
- 7.3.3 It is noted that only freely available information has been used for CRC1 to CRC7, therefore there is limited baseline information in the scoping report for CRC1 to CRC7.

Baseline data sources

- 7.3.4 The following existing information has been reviewed to inform the baseline:
- British Geological Survey (BGS), On-shore GeoIndex, 2026¹⁴⁰;
 - Groundsure, Enviro+Geo Insight report, Arrow Valley North, Ref GS-6GF-UDD-XD8-DXU, Ref GS-EFU-BLN-8ZJ-ADP, January 2026⁶⁷;
 - Groundsure, Enviro+Geo Insight report, Arrow Valley North 2, Ref GS-6UU-L2A-95I-UGP; Ref GS-LT8-1AF-VQW-l6Z, January 2026⁶⁸;
 - Groundsure, Enviro+Geo Insight report, Arrow Valley South, Ref GS-YSY-78f-8VS-MDN, Ref GS-1DR-53L-3OV-3TX, January 2026⁶⁹;
 - Groundsure, Enviro+GeoInsight report, Arrow Valley South 2, Ref GS-86Q-3IH-ANA-N2D, Ref GS-6OW-C84-X2W-1XM⁷⁰;
 - National Library of Scotland, Ordnance Survey Maps, 2026²⁰⁸;
 - Groundsure.io, Groundsure insights, 2026²⁰⁹;
 - Google Earth Pro, 2026²¹⁰;
 - Defra, Magic Map, 2026¹³⁸; and
 - Warwickshire Local Geological Sites website²¹¹.

²⁰⁸ National Library of Scotland (2026) Ordnance Survey Maps. Available at: <https://maps.nls.uk/os/>.

²⁰⁹ Groundsure.io (2026) Groundsure insights. Available at: <https://insights.groundsure.io/>.

²¹⁰ Google Earth Pro (2026). Available at: <https://earth.google.com/web/>.

²¹¹ Warwickshire Local Geological Sites (2026). Available at: <https://lgs.wgcfg.co.uk/>

Historical development

- 7.3.5 The history of the Study Area has been determined by reference to ordnance survey maps provided within the Groundsure reports^{217,218,219,220}. An overview of the site history and surrounding area within 500m is provided below. Reference to on-site features relates to the Site. Reference to off-site features relates to areas within the Study Area but outside the Site boundary.

On-site

- 7.3.6 The earliest available maps (dated 1883 to 1885) show the Study Area to generally comprise agricultural land with scattered farms and pockets of woodland. Old clay pits / quarries are located within the south of Site 1, south of Site 2 and west of Site 3.
- 7.3.7 An area of land to the south of Site 1 is labelled as Bevington Waste, although it is unclear what this relates to and still holds this name to the present day. Broom Junction, comprising the Barnt Green and Ashchurch Branch railway line and Stratford upon Avon railway line, are located to the east of Site 2, orientated north to south.
- 7.3.8 Later mapping shows the following changes:
- 1905 mapping records further gravel pits within the eastern area of Site 2;
 - 1973 mapping shows an electricity substation (current Feckenham 400kV electricity substation) has been constructed within CRC1, at the PoC;
 - 1978 mapping records the Barnt Green and Ashchurch Branch railway line and Stratford upon Avon railway line located within Site 2 as dismantled; and
 - The construction of the A46 road running through Site 2 is not shown on available historical mapping but is shown to have been constructed by 1999 on aerial photography²¹⁸.

Off-site

- 7.3.9 The earliest available maps (dated 1883 to 1885) show the Study Area to comprise a mix of undeveloped agricultural land, woodland, scattered farms and villages, old clay pits and a sand pit. The Ashchurch Branch railway line is located adjacent to the south and north of Site 2. The Stratford upon Avon railway line is located adjacent to the east of Site 2.
- 7.3.10 Later mapping shows the following:
- 1905 mapping records gravel pits across the Study Area;

- 1823-1924 mapping shows a corn mill (approximately 15m north-east) and Preserve Works (approximately 70m east) are shown off-site to the east of Site 2. Engineering works are located approximately 420m south of Site 2;
- 1950, mapping shows unknown structures (later labelled as Honeybourne sub-depot) constructed approximately 120m east of Site 4;
- 1966 mapping shows a sewage works within CRC3;
- 1978 mapping the Barnt Green and Ashchurch Branch railway line and Stratford upon Avon railway line located adjacent to Site 2 are recorded as dismantled; and
- 2001 mapping shows a gas depot located approximately 320m north-east of Site 2; by 2010 the gas depot is no longer mapped as present.

Historical industrial land uses

7.3.11 A summary of key historical industrial land uses within the Study Area obtained from the Groundsure reports^{67,68,69,70} is provided in Table 7-1.

Table 7-1 Summary of Historical Industrial Land Uses

Site	On-site	Off-site (within 500m)
Site 1	Unspecified old mill, old clay pit and unspecified disused pit.	Unspecified disused pits, old clay pits, sand pit, unspecified ground workings, nursery, unspecified tank, smithy and electricity substation.
Site 2	Unspecified pits, gravel pit, railway sidings, unspecified ground workings, depot, tanks, railway building.	Nurseries, corn mill, gravel pits, old clay pits, unspecified pits, Preserve Works, railway station, railway cuttings, refuse heap, smithies, egg packing station, railway siding, engineering works, gas depot, electricity substations and transformers.
Site 3	Unspecified pit / quarry and tanks	Unspecified quarries, tanks, smithy, lime kilns, unspecified heap, unspecified ground workings, pump and electricity substations.
Site 4	None	Nurseries, railway sidings, sub-depot, tanks, smithy and electricity transformers.

Geology

7.3.12 The geology for the Study Area has been obtained from the BGS GeoIndex website¹⁴⁰ and the 1:10,000 scale and 1:50,000 scale geological maps provided within the Groundsure reports^{67,68,69,70}.

- 7.3.13 Volume II, Figures 7.2 and 7.3 illustrate the published superficial and bedrock geology underlying the Study Area.

Artificial ground

- 7.3.14 Published maps indicate that no artificial or Made Ground is recorded underlying the Study Area. However, Made Ground is anticipated to be present related to historical development of the Study Area, for example, infill to historical quarries and landfills, general farming practices and road/railway construction and operation.

Superficial deposits

- 7.3.15 Published geological maps (1:50,000 scale) record that the superficial deposits underlying the Study Area comprise the Pershore Sand and Gravel Member, Till, Alluvium, Glaciofluvial Deposits, Wasperton Sand and Gravel Members, Ailstone Bed and the Bretford Sand and Gravel Member. Superficial deposits recorded to be absent within localised areas of the Study Area. A summary of the superficial deposits underlying the Study Area is provided in Table 7-2.

Table 7-2 Summary of Superficial Deposits

Site / CRC	Superficial Deposits
Site 1	▪ Mapped as absent in areas ▪ Pershore Sand and Gravel Member (sand and gravel) ▪ Till (diamicton) ▪ Alluvium (clay, silt, sand and gravel) ▪ Glaciofluvial Deposits (sand and gravel)
Site 2	▪ Mapped as absent in areas ▪ Wasperton Sand and Gravel Member (sand and gravel) ▪ Bretford Sand and Gravel Member (sand and gravel) ▪ Alluvium ▪ Pershore Sand and Gravel Member ▪ Ailstone Bed (sand and gravel)
Site 3	▪ Mapped as absent in areas ▪ Alluvium
Site 4	▪ Mapped as absent
CRC1	▪ Mapped as absent in areas ▪ Alluvium ▪ Bretford Sand and Gravel Member
CRC2	▪ Pershore Sand and Gravel Member
CRC3	▪ Bretford Sand and Gravel Member ▪ Alluvium

Site / CRC	Superficial Deposits
	Wasperton Sand and Gravel Member
CRC4	Mapped as absent
CRC5	Mapped as absent
CRC6	Mapped as absent
CRC7	Mapped as absent

Bedrock geology

- 7.3.16 Published geological maps (1:50,000 scale) record the bedrock geology underlying the Study Area to comprise the Mercia Mudstone Group, Blue Lias Formation, Blue Anchor Formation, Penarth Group Mudstone, Blue Lias and Charmouth Mudstone Formation, Wilmcote Member and the Arden Sandstone Formation. A summary of the bedrock underlying the Study Area is provided in Table 7-3.

Table 7-3 Summary of Bedrock Geology

Site / CRC	Bedrock Geology
Site 1	- Mercia Mudstone Group (mudstone) - Blue Lias Formation (mudstone and limestone interbedded) - Blue Anchor Formation (mudstone) - Penarth Group Mudstone (mudstone) - Blue Lias and Charmouth Mudstone Formation (mudstone)
Site 2	Mercia Mudstone Group (mudstone)
Site 3	- Wilmcote Member (mudstone and limestone interbedded) - Blue Lias and Charmouth Mudstone Formation
Site 4	Blue Lias and Charmouth Mudstone Formation
CRC1	- Arden Sandstone Formation (sandstone and siltstone) - Mercia Mudstone Group - Branscombe Mudstone Formation (mudstone) - Branscombe Mudstone Formation (dolomitic siltstone)
CRC2	Mercia Mudstone Group
CRC3	- Mercia Mudstone Group - Penarth Group Member - Blue Anchor Formation - Wilmcote Member
CRC4	- Wilmcote Member - Blue Lias and Charmouth Mudstone Formation
CRC5	Blue Lias and Charmouth Mudstone Formation
CRC6	Blue Lias and Charmouth Mudstone Formation

Site / CRC	Bedrock Geology
CRC7	Blue Lias and Charmouth Mudstone Formation

BGS boreholes

7.3.17 There are 77 British Geological Survey (BGS) historical borehole records located on the Site:

- Site 1: No boreholes located on-site;
- Site 2: 53 boreholes located on-site;
- Site 3: No borehole located on-site;
- Site 4: No boreholes located on-site;
- CRC1: 8 boreholes located on-site;
- CRC2: No boreholes located on-site;
- CRC3: 16 boreholes located on-site;
- CRC4: No boreholes located on-site;
- CRC5: No boreholes located on-site;
- CRC6: No boreholes located on-site; and
- CRC7: No boreholes located on-site;

Potential geohazards

7.3.18 The Groundsure^{67,68,69,70} include data regarding the potential geohazards which may be present within the Study Area. These are based on large scale 1:50,000 BGS mapping and the BGS' consideration of strata type and how it would be expected to typically behave. Therefore, the data is indicative only but provides an initial assessment as to whether a potential risk may be present. A summary of the data is provided in Table 7-4.

Table 7-4 Summary of Geohazards

Site / CRC	Geohazard Risk
Site 1	- Very low potential with a moderate potential through the central area of the Sub-Site for shrink swell clay soils. The moderate potential is related to the Blue Lias Formation bedrock underlying the central area of the site, with the low potential related to the Mercia Mudstone bedrock. - Negligible potential for running sands, with a very low to low potential in the central area of the Sub-Site. - Negligible potential for compressible ground, with a moderate potential in the central area of the Sub-Site. - Negligible to very low potential for collapsible deposits. - Very low potential for landslides with rare small, localised pockets of ground assessed as moderate potential. - Negligible potential for ground dissolution of soluble rocks.

Site / CRC	Geohazard Risk
Site 2	- Negligible to very low potential for shrink swell clay soils. - Negligible to very low potential for running sands, with a low potential at the eastern and southern extents associated with Alluvium in the vicinity of surface watercourses. - Negligible potential for compressible ground, with a moderate potential at the eastern and southern extents associated with Alluvium in the vicinity of surface watercourses. - Negligible to very low potential for collapsible deposits. - Low potential for landslides with rare small, localised pockets of ground assessed as moderate potential. - Negligible potential for ground dissolution of soluble rocks.
Site 3	- Negligible to low potential for shrink swell clay soils. - Negligible potential for running sands. - Negligible potential for compressible ground. - Very low potential for collapsible deposits. - Very low to low potential for landslides. - Negligible potential for ground dissolution of soluble rocks.
Site 4	- Low potential for shrink swell clay soils. - Negligible potential for running sands. - Negligible potential for compressible ground. - Very low potential for collapsible deposits. - Very low to low potential for landslides. - Negligible potential for ground dissolution of soluble rocks.
CRC1 to CRC7	The datasets available to review only cover the Sub-Sites although it is reasonable to assume, considering the consistent geology, that geohazard potential would be equivalent for the CRs, i.e. typically negligible to very low potential.

Sensitive geological sites

- 7.3.19 The Groundsure reports^{67,68,69,70} record that there are no geological SSSI located on the Site. Broom Railway in the Study Area, a railway cutting is designated as a geological SSSI, located approximately 95m southeast of sub-Site 2(e) and adjacent to the north of CRC3. There are no further geological SSSI located within 500m of the Site.

- 7.3.20 There are no Local Geological Sites (LGS) on the Site. There are two LGSs within the Study Area comprising Marsh Farm Salford Priors, related to exposures of the sand and gravels of the second terrace of the River Avon, located approximately 50m east of sub-Site 2(d); and Marcliff Hill, located approximately 480m north of sub-Site 3(a), related to an exposure of a geological sequence through the Triassic Mercia Mudstone Group, Blue Anchor Formation up into the Westbury Formation of the Penarth Group.

Mining activity and quarrying

- 7.3.21 The Study Area is not located within an area affected by coal mining activities^{67,68,69,70}.
- 7.3.22 There are 13 BritPits (British Pits) / mines or quarries recorded on the Site and a further 30 BritPits / mines or quarries located within 500m of the Site comprising:
- Site 1: One BritPit on the Site and six BritPits located off-site. All ceased with commodity listed as sand, clay and shale;
 - Site 2: Four BritPits on the Site and four BritPits located off-site. All ceased with commodity listed as sand and gravel, clay and shale;
 - Site 3: One BritPit on the Site and three BritPits located off-site. All ceased with commodity listed as limestone;
 - Site 4: No BritPits located on the Site or off-site²²⁰.
 - CRC1: Two mines / quarries located on the Site. Four mines / quarries located off-site;
 - CRC2: One mine /quarry located on the Site. Five mines / quarries located off-site;
 - CRC3: No mines /quarries located on the Site. Six mines / quarries located off-site;
 - CRC4: Four mines /quarries located on the Site. Two mines / quarries located off-site;
 - CRC5: No mines / quarries located on the Site or off-site;
 - CRC6: No mines / quarries located on the Site or off-site; and
 - CRC7: No mines / quarries located on the Site or off-site.
- 7.3.23 Records of historical licenced waste sites are available in the Groundsure report data^{67,68,69,70} which identifies that a historical quarry was located in the south-west of Site 2 (sub-Site 2(a) and 2(d)), named Ragley Quarry, which is now infilled.

Contaminated land

Pollution incidents

7.3.24 The Groundsure data^{67,68,69,70} records that there are no substantiated pollution incidents located on the Site and there are six pollution incidents located within 500m of the Site as summarised below:

- Site 1: No pollution incidents located on the Site or off-site;
- Site 2: Three pollution incidents are located off-Site between 70m and 410m from the Site, comprising either category 3 (minor) or category 4 (no impact) impacts for pollutants listed as commercial waste, firefighting run-off and unknown pollutants;
- Site 3: One pollution incident located 440m off-site comprising either category 3 or category 4 impacts for pollutant listed as vegetable cuttings and deposits; and
- Site 4: Two pollution incidents located off-site between 365m and 375m from the Site, comprising either category 3 or category 4 impacts for pollutants listed as crude sewage and diesel.

Landfill and waste management facilities

7.3.25 There are no active or recent landfills located within the Study Area^{67,68,69,70}.

7.3.26 There are five historical landfills located on the Site and a further twenty historical landfills located within 500m of the Site comprising:

- Site 1: One landfill located on the Site listed as a disused pit at Wood Bevington Farm. Four landfills located off-site (approximately 140m south-west, 205m east, 434m east and 485m east). Waste type not provided;
- Site 2: Two landfills are located on the Site, listed as East of Dunnington Court and Limebridge Nurseries. A third historical landfill is considered to be present related to historical quarrying activities at Ragley Quarry (sub-Site 2a and 2d), recorded as accepting landfill and non-biodegradable wastes. Five historical landfills located off-site (approximately 15m east, 40m south-east, 40m south, 80m east and 195m south); for these off-site landfills the waste type is either not provided or listed as inert and household;
- Site 3: No historical landfills located on the Site or off-site;
- Site 4: No historical landfills located on the Site. Two historical landfills located off-site approximately 200m east and 320m east. Waste type not provided.
- CRC1: No historical landfills located on the Site or off-site;

- CRC2: One historical landfill located on the Site and five historical landfills located off-site (approximately 80m south, 110m north, 150m south-west, 300m north and 340m west). Includes disused pits. Waste type not provided;
- CRC3: No historical landfills located on the Site and three historical landfills located off-site (adjacent to the east, approximately 130m west, 155m west). Waste type not provided;
- CRC4: No historical landfills located on the Site or off-site;
- CRC5: No historical landfills located on the Site or off-site;
- CRC6: No historical landfills located on the Site or off-site; and
- CRC7: No historical landfills located on the Site and one historical located approximately 15m south. Waste type not provided.

7.3.27 There is one active licenced waste site located within Site 2, at Marsh Farm Landfill with the type of site listed as taking non-biodegradable wastes. There is one licensed waste site located within 500m of Site 2. There are no further licensed waste sites located within the Study Area^{67,68,69,70}.

Fuel stations

7.3.28 There are no active petrol stations located within the Study Area. There is one historical petrol station located approximately 300m west of sub-Site 2 at South Littleton^{67,68,69,70}.

Sensitive land uses

7.3.29 There are no environmental statutory land designations located on the Site^{67,68,69,70}. Broom Railway Cutting geological SSSI is located approximately 95m southeast of Site 2 and adjacent to the north of CRC3.

Potential contamination sources

7.3.30 The baseline information presented in the preceding sections has been used to identify potential sources of contamination within the Study Area^{67,68,69,70}. On-site sources may be encountered during excavation and off-site sources have the potential to migrate on-site via windblown soil derived dusts or in groundwater. Reference to on-site features relates to the Site. Reference to off-site features relates to the Study Area, outside the Site boundary.

7.3.31 On-site:

- Made Ground of unknown provenance associated with the infill of historical infilled pits and quarries (Site 1, Site 2, Site 3, CRC1, CRC2, CRC4);

- Made Ground associated with the historical landfills and potential for landfill leachate and ground gas (Site 1, Site 2, CRC2);
- Made Ground associated with the historical development of the Site for industrial use, including a former mill (Site 1);
- Made Ground associated with the historical development of the Site for industrial use, including a former depot of unspecified use, former railway line, former railway sidings, tanks of unknown content, and development of the A46 road (Site 2, CRC3);
- Made Ground associated within the historical development of the Site including former tanks of unknown content (Site 3);
- Feckenham 400kV electricity substation (CRC1); and
- Agricultural farming activities (Site 1 to Site 4 and CRC1 to CRC7).

7.3.32 Off-site (within 500m):

- Made Ground of unknown provenance associated with the infill of historical pits and quarries (Site 1, Site 2, Site 3, CRC1, CRC2, CRC3, CRC4);
- Made Ground, landfill leachate and ground gas associated with historical landfills and infilled historical pits and quarries (Site 1, Site 2, Site 4, CRC2, CRC3 and CRC7);
- Made Ground associated with the historical development of the surrounding area including, former tanks, former smithy and electricity substation (Site 1);
- Made Ground associated with the historical development of the surrounding area including former railway line, former railway sidings, former corn mill, former Preserve Works, former refuse heap, former smithies, former engineering works, former petrol station and egg packing station (Site 2);
- Made Ground associated with the historical development of the surrounding area including former tanks, former smithy, former lime kilns and electricity substations (Site 3);
- Made Ground associated with the historical development of the surrounding area including former railway sidings, former tanks, former smithy, former nurseries, electricity transformers and sub-depot (Site 4); and
- Sewage works (CRC3) near to Salford Priors;
- Agricultural farming activities within the surrounding area (Site 1 to Site 4 and CRC1 to CRC7).

7.3.33 A potential on-site contaminant sources plan is (includes Sites 1 to 4 only) is presented as Volume II, Figure 7-1.

Potential receptors to contamination

- 7.3.34 The baseline information presented in the preceding sections has been used to identify potential receptors to sources of contamination which may be present in the Study Area.
- 7.3.35 On-site:
- Human Health: Site workers, maintenance workers, trespassers, farmers, members of the public traversing the site (all Sites).
 - Property: future solar panels, substations, ancillary development and the BESS (all Sites).
- 7.3.36 Off-site (within 500 m):
- Human Health: Residents, workers, farmers, members of the public traversing the site (all Sites).
 - Property: Residential housing, commercial properties, farm buildings.
 - Sensitive Sites: Marsh Farm Salford Priors LGS, 50 m east of sub-Site 2(d), Marcliff Hill, 480 m north-east of sub-Site 3(a), Broom Railway SSSI, 85 m south-east of sub-Site 2(e) and adjacent to the north of CRC3.

Unexploded Ordnance

- 7.3.37 Freely available online information has been reviewed from Zetica²¹² to provide a preliminary indication of the potential risk of encountering unexploded ordnance (UXO). The information is a high-level overview of the potential for unexploded enemy airdropped ordnance to be present on the Site; it does not consider other forms of ordnance (e.g. allied ordnance stores) and is not a site-specific assessment. The Study Area is assessed as having a low potential for UXO.

²¹² Zetica UXO (2026) Risk Maps. Available at: <https://zeticauxo.com/guidance/risk-maps/>

7.4 Assessment Methodology

7.4.1 The proposed methodology for the effects from land contamination and geology will follow guidance in DMRB LA109¹⁹³. The DMRB guidance is in accordance with the requirements as defined in Part 2A of the Environmental Protection Act 1990³⁸, objectives set out in the Defra Contaminated Land Statutory Guidance 2012 and detailed in the Environment Agency Land Contamination Risk Management Guidance (LCRM)²¹³. The potential risk is assessed through the identification and assessment of contaminant linkages comprising:

- Sources of contamination and associated contaminants;
- Potential receptors to that contamination – humans, property and sensitive land; and
- Potential pathways between the sources and receptors.

7.4.2 Where all three elements are present, or are likely to be present, they are described as potential contaminant linkages (PCLs). The PCLs can then be subjected to the risk assessment and risk management process. A Conceptual Site Model (CSM) is developed which describes the relationship between potential sources of contamination (resulting from both on and off-site historical and current activities) and receptors to the potential contamination and the outcome of the risk assessment.

7.4.3 The assessment of significant effects for human health and geology will be determined from sensitivity/value criteria specified in Table 3.11, combined with the magnitude of impacts in Table 3.12 (DMRB LA109¹⁹³) and applying the matrix DMRB LA104³⁴ (see Section 2.3).

7.5 Embedded Mitigation

7.5.1 Mitigation measures to be incorporated into the construction process include:

- Consideration of design to avoid potential geohazards or potential land contamination, as far as practicable.
- Preparation and implementation of a Soil Management Plan (SMP) where soils are to be excavated;
- Health and safety risk assessments, method statements and appropriate personal protective equipment for the protection of construction workers when handling soils;

²¹³ Environment Agency (2025) Land Contamination Risk Management (LCRM). Available at: <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>

- Implementation of appropriate and safe storage of fuel, oils and equipment during construction including appropriate pollution incident control e.g. plant drip trays and spill kits.

7.5.2 The above mitigation measures will be incorporated into the construction of the Scheme and will be presented within an oCEMP which will be submitted alongside the ES.

7.6 Likely Significant Effects

Construction

7.6.1 Potential geohazards have been identified within the Study Area which may affect the constructability of the solar arrays, CRs and ancillary structures and would need to be considered in foundation design. The potential risks, and mitigation which may be required, will be considered at the detailed design stage as part of GIs and assessments in accordance with CD622: Managing geotechnical risk¹⁹⁴.

7.6.2 Existing and new sources of contamination, if present, may be disturbed and mobilise as a result of construction activities, which may migrate to pose a risk to human health receptors. Potential changes to the baseline situation which may create potential contamination impacts from the construction phase therefore include:

- Mobilising of contaminants by excavation, removal and stockpiling of material, increasing the risk to controlled water receptors through leaching and run-off;
- Exposure of human receptors by generation of potentially contaminated soil derived dusts and vapours which may be released as a result of disturbance during the construction works; and

7.6.3 The oCEMP will consider the above potential risks and detail how they will be managed.

Operation

7.6.4 Environmental impacts from land contamination are likely to be greatest during construction, with reduced impacts likely during operation. The Scheme is assumed to be operated in accordance with the relevant environmental regulations, best practice guidance and pollution prevention mitigation.

7.6.5 However, notwithstanding the reduced likelihood noted above, the operation of the Scheme may introduce new sources of contamination including:

- Potential heavy metals from damaged solar panels damaged from high winds, hail stones and weathering of solar panels may contaminate surrounding soils; and
- Potential fire event at the BESS which may result in the spillage/leakage from battery units and/or leaching and subsequent migration of fire water which may contaminate the surrounding soils.

7.6.6 An oOEMP and oBSMP will be submitted alongside the ES detailing how the above risks will be managed. Additionally, the Drainage Strategy for the Scheme will be submitted as part of the DCO application for approval, to ensure that contamination potential from the BESS is avoided.

Decommissioning

7.6.7 For future decommissioning, there is potential for contamination/pollution incidents to occur during the removal of the solar arrays and associated infrastructure, such as due to damage or release of oils or heavy metals into soils. However, decommissioning will be conducted in accordance with the relevant environmental regulations, best practice guidance and pollution prevention mitigation at the time of decommissioning. An oDEMP will be submitted as part of the DCO application which will ensure that potential contamination from the decommissioning process is avoided.

7.7 Assumptions and Limitations

7.7.1 No ground investigation works have been undertaken for the Scheme. Therefore, the presence of contamination associated with the potential contamination sources summarised in the baseline is currently unknown / unproven. There may also be unexpected, or unrecorded, sources of potential historical contamination which may be encountered or be present on the Site or within the Study Area.

7.7.2 The baseline information and assessment presented in this chapter for the CRC Search Area is based on freely available information only. Site specific datasets from Groundsure have not been procured for this stage of the assessment whilst the CRC is still at an early stage of refinement.

7.8 Conclusions on Scoping

Scoped in effects

7.8.1 The ground conditions and contamination aspects that will either be scoped in and taken forward for assessment in the ES or scoped out and will therefore not be taken forward for assessment in the ES are summarised in Table 7-5.

Table 7-5 Ground Conditions and Contamination Topics Scoped In/out

Topic	Scoped in/out	Description
Human health impacts	In	Effects from contamination associated with potential on-site current and historical sources, and those off-site in the Study Area which may migrate to the Site in soil derived dusts or groundwater (all Sub-Sites and CRC areas).
New sources of contamination arising from construction activities and from damage to solar panels during operation	Out	These effects are assumed to be mitigated through best practice construction methods and operational procedures and monitoring to be detailed in the CEMP and OEMP. This includes measures as outlined in ISEP Guidance relating to Solar PV on Agricultural Land ¹⁹ , such as regular maintenance check of panels during operation, to be secured in the oEMP, and clear handling guidance during construction, to be secured within the oCEMP.
Ground Gas	Out	No proposed enclosed structures as part of the Scheme within which ground gas may accumulate. The solar arrays, substations, sub-distribution switch rooms, conversion units, BESS and ancillary development are either external or sufficiently ventilated. Potential ground gas, if present generated from natural organic soils or putrescible materials in infill (historical quarries and landfills), is anticipated likely to dissipate to atmosphere.
Statutory or non-statutory geological or environmental designations	Out	None have been identified on the Site.
UXO	Out	The potential risk related to UXO has been identified to be low.

8 Soils and Agriculture

8.1 Introduction

- 8.1.1 This chapter sets out the proposed scope for the soils and agriculture assessment. It provides a summary of the baseline conditions relating to soils and agriculture, outlines the proposed assessment methodology, identifies the potential effects of the Scheme and proposed mitigation measures.
- 8.1.2 The following aspects have been considered in this scoping assessment:
- Effects on soil resources and soil functions including loss and structural damage;
 - Effects on agricultural land including Best and Most Versatile (BMV) land; and
 - Effects on agricultural land holdings.
- 8.1.3 The Soils and Agriculture scoping assessment has been undertaken in line with the ISEP Land and Soil EIA guidance²¹⁴ and the High Speed 2 (HS2) assessment methodology for agricultural land holdings²¹⁵ (which is considered best practice), with reference to the ISEP guidance for the assessment of solar projects on agricultural land²¹⁶.
- 8.1.4 The scoping assessment of soil resources considers their susceptibility to damage, their role in providing ecosystem services such as a platform for landscape, biodiversity and their role as a carbon store.
- 8.1.5 The scoping assessment of agricultural land considers the quality of the land based on the Agricultural Land Classification (ALC) framework²¹⁷, which categorises agricultural land quality into five grades. Planning policy seeks to avoid the loss of the best quality BMV agricultural land (Grade 1 to Subgrade 3a) where possible.

²¹⁴ ISEP (2021) Land and Soil in Environmental Impact Assessment. Available at:

<https://www.isepglobal.org/articles/land-and-soil-in-environmental-impact-assessment>

²¹⁵ Department for Transport (2013) HS2 Phase One environmental statement volume 5: land quality. Available at: <https://www.gov.uk/government/publications/hs2-phase-one-environmental-statement-volume-5-land-quality/hs2-phase-one-environmental-statement-volume-5-land-quality>

²¹⁶ ISEP (2025) Solar PV on agricultural land, Essential Components of Environmental Assessments and Reports. Available at: <https://www.isepglobal.org/resources/news/2026/january/the-best-and-most-versatile-farmland-should-be-protected-amid-rapid-expansion-of-uk-solar-power-says-new-guidance/>

²¹⁷ Department for Environment, Food and Rural Affairs, Agricultural Land Classification for England and Wales (2025) Guidelines for grading the quality of agricultural land, J069

8.1.6 The assessment of agricultural land holdings examines the potential effects of the Scheme on farm enterprises and seeks to establish the extent to which they will remain viable as a result of the Scheme.

8.1.7 This chapter has links with other environmental topics:

- Effects associated with flood risk are provided in Chapter 5 (Section 5.7 Water Environment);
- Effects associated with land contamination are provided in Chapter 7 (Ground Conditions and Contamination); and
- Effects associated with landform are reported in Chapter 12 (Landscape and Visual).

8.2 Legislation, Policy and Guidance

8.2.1 This section presents the policy and guidance relevant to the Soils and Agriculture assessment. There is no particular legislation relevant to this assessment.

Policy

8.2.2 The following national and local policies are relevant to the Soils and Agriculture scoping assessment.

- Overarching NPS for Energy (EN-1)¹³
- NPS for Renewable Energy Infrastructure (EN-3)¹⁴
- NPS for Electricity Networks Infrastructure (EN-5)¹⁵
- NPPF¹⁸
- SWDP 2016²⁴ - Policy SWDP 13: Effective Use of Land
- Stratford-on-Avon District Core Strategy²⁵ - Policy AS.10 Countryside and Villages
- Redditch Local Plan No. 4 2011-2030²³ - Policy 16 Natural Environment

Guidance

Agricultural Land Classification

8.2.3 The ALC system²³² is a framework for classifying agricultural land to inform planning. It divides agricultural land into five grades, with Grade 3 subdivided into Subgrades 3a and 3b. Grades 1 to 3a represent BMV land, deemed most suitable for supporting agricultural production.

Guide to assessing development proposals on agricultural land

- 8.2.4 Natural England guidance²¹⁸ emphasises the need to avoid unnecessary loss of BMV agricultural land and protect soil resources by managing them in a sustainable way.
- 8.2.5 LPAs must consult Natural England for development proposals that are both:
- Likely to cause the loss (or likely cumulative loss) of 20 hectares (ha) or more of BMV land; and
 - Not in accordance with an approved development plan.

Construction Code of Practice for the Sustainable Use of Soils on Construction Sites

- 8.2.6 Defra guidance²¹⁹ provides a framework for sustainable soil management. It sets out practical measures for protecting soil resources during construction and outlines best practices for handling, storing and reusing soil to minimise damage, maximise on-site reuse and preserve soil quality. It specifies that a soil resource survey should be conducted prior to construction and used to prepare a soil resource plan to inform effective soil management during construction.

Good Practice Guide for Handling Soils

- 8.2.7 The Institute of Quarrying's Good Practice Guide²²⁰ provides guidance on soil handling practices for minimising structural damage to soil during construction. It covers key issues relating to soil function and ecosystem services, soil resource and management planning, soil compaction and wetness, monitoring and recording, planning conditions and control.

²¹⁸ Natural England (2021) Guide to assessing development proposals on agricultural land. Available at: <https://www.gov.uk/government/publications/agricultural-land-assess-proposals-for-development/guide-to-assessing-development-proposals-on-agricultural-land>

²¹⁹ Defra (2018) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. Available at: <https://www.gov.uk/government/publications/code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites>

²²⁰ Institute of Quarrying (2021) Good Practice Guide for Handling Soils in Mineral Workings. Available at:

<https://www.quarrying.org/hubfs/Soils%20Guidance/IQ%20Soil%20Guidance%20full%20document%20including%20all%20practitioner%20advice%20updated%20May%202022.pdf>

A New Perspective on Land and Soil in EIA

- 8.2.8 ISEP's guide²²⁹ provides a methodology for assessing land and soil within EIA, taking account of wider soil functions and ecosystem services provided by land and soils.

8.3 Baseline Conditions

Study area

- 8.3.1 The Study Area for Soils and Agriculture is the Scoping boundary which includes Site 1 to Site 4, within which sit the respective sub-Sites, and CRC1 to CRC7 (Volume II, Figure 1.2).
- 8.3.2 The assessment will include all soil and agricultural land receptors within the Scoping boundary. Agricultural land holdings that fall partially within the scoping boundary will also be considered in the assessment.

Baseline data sources

- 8.3.3 The following sources of information have been reviewed to inform the baseline:
- Climatological Data for Agricultural Land Classification²²¹;
 - Environment Agency flood map for planning¹⁴³;
 - National Soil Map dataset²²²;
 - Provisional Agricultural Land Classification²³²;
 - Post-1988 Agricultural Land Classification²²³;
 - British Geological Survey (BGS) GeoIndex¹⁴⁰;
 - Groundsure, Enviro+Geo Insight report, Arrow Valley North, Ref GS-6GF-UDD-XD8-DXU, Ref GS-EFU-BLN-8ZJ-ADP, January 2026⁶⁷;
 - Groundsure, Enviro+Geo Insight report, Arrow Valley North 2, Ref GS-6UU-L2A-95I-UGP; Ref GS-LT8-1AF-VQW-l6Z, January 2026⁶⁸;
 - Groundsure, Enviro+Geo Insight report, Arrow Valley South, Ref GS-YSY-78f-8VS-MDN, Ref GS-1DR-53L-3OV-3TX, January 2026⁶⁹; and
 - Groundsure, Enviro+GeoInsight report, Arrow Valley South 2, Ref GS-86Q-3IH-ANA-N2D, Ref GS-6OW-C84-X2W-1XM⁷⁰.

²²¹ Natural England (1989) Climatological Data for Agricultural Land Classification. Available at: <https://publications.naturalengland.org.uk/publication/6493605842649088>

²²² Cranfield University (2026) Mapping and understanding soil types across England and Wales. Available at: <https://www.cranfield.ac.uk/case-studies/national-soil-map>

²²³ Natural England (2024) Agricultural Land Classification detailed Post 1988 ALC survey. Available at: <https://publications.naturalengland.org.uk/category/6249382855835648>

Land use and topography

- 8.3.4 A summary of the current land use and topography within the Study Area is provided in Table 8-1. The areas reported for the CRC includes the Search Area, which is larger than the expected final working width of the CRC, which will be on average 25 m to 35 m.

Table 8-1 Current Land Use

Site	Current Land Use	Topography	Area (ha) or length (km)
Site 1	Comprises approximately 50 arable fields	The land and is gently undulating and ranges from 50 to 120 m above ordnance datum (AOD)	422 ha
Site 2	Comprises approximately 52 arable fields	The land is flat to gently sloping and ranges between 30 and 80 m AOD	320 ha
Site 3	Comprises approximately around 30 arable fields	The land is predominantly flat to gently sloping and between 35 and 60 m AOD	283 ha
Site 4	Comprises approximately four arable fields	The land is gently undulating between 33 and 39 m AOD	37 ha
CRC1	Crosses arable fields, watercourses and roads	The land is predominantly flat to gently sloping and between 60 and 120 m AOD	276.1 ha (7.6 km)
CRC2	Crosses arable fields two roads	The land is flat to gently sloping and ranges between 55 and 70 m AOD	146.4 ha (1.4 km)
CRC3	Crosses arable fields, a small woodland, watercourses and a road	The land is flat to gently sloping and ranges between 29 and 55 m AOD	250.6 ha (2.6 km)
CRC4	Crosses two arable fields	The land is very gently sloping from 50 m AOD in the north of CRC to 55 m AOD at the southern end	7.3 ha (0.37 km)
CRC5	Crosses part of an arable field	The land is flat and located at 39 m AOD	4.3 ha (0.9 km)
CRC6	Crosses wood pasture	The land is flat and located at 40 to 45 m AOD	50 ha (1.6 km)

Site	Current Land Use	Topography	Area (ha) or length (km)
CRC7	Crosses arable fields, watercourses and roads	The land is gently undulating between 35 and 55 m AOD	68.1 ha (2.6 km)

Geology

- 8.3.5 A description of the mapped geology across the Study Area is provided in Chapter 8 (Ground Conditions and Contamination).

Flood risk

- 8.3.6 The risk of flooding is a contributing factor to ALC grade as inundation can have a detrimental effect on yield and affect soil management. Chapter 5 (Section 5.7) provides the flood risk baseline.

Climate

- 8.3.7 Climate data from the Met Office 1989 climatological dataset²⁴³ for the nearest Ordnance Survey national grid reference (NGR) to the Study Area are displayed in Table 8-2.
- 8.3.8 The average annual rainfall (AAR) within the Study Area ranges from 630 to 690 mm. The number of field capacity days (FCD), which are the number of days that the soil is at field capacity with a moisture deficit (MD) of zero, ranges from 136 to 153 days across the Study Area.
- 8.3.9 The MD, which represents the amount of water a soil needs to return to field capacity when evapotranspiration exceeds rainfall over the crop growing season, is reported as 95 to 109 mm for winter wheat and 82 to 102 mm for potatoes.
- 8.3.10 These data suggest overall that Site 1 and CRC1 are the wettest areas within the Study Area with regard to rainfall and soil moisture, while Site 3 is marginally drier.

Table 8-2 Climatological data for the Study Area

NGR	Nearest Site	AAR (mm)	FCD (days)	MDW (mm)	MDP (mm)
SP 050 600	CRC1	690	153	95	82
SP 050 550	Site 1, CRC1, CRC2	662	144	100	90
SP 100 550	Site 2	641	138	104	95
SP 100 500	Site 3, CRC3, CRC4, CRC5, CRC6	630	136	109	101
SP 100 450	Site 4, CRC7	648	139	109	102
NGR: National Grid Reference, AAR: Average Annual Rainfall, FCD: Field Capacity Days, MDW: Moisture Deficit for Wheat, MDP: Moisture Deficit for Potatoes					

Soil resources

- 8.3.11 National Soil Association²⁴⁵ mapping identifies 12 different soil associations across the Sites and CRCs, as presented in Volume II, Figure 8.1.
- 8.3.12 Most soil associations found across the Study Area are characterised by slowly permeable clayey textures and are prone to waterlogging. Further details are provided in Table 8-3.
- 8.3.13 Although dominated by Salwick, Whimble 3 and Worcester associations, the soils are variable in the north of the Study Area within Sites 1 and 2 compared with the southern Sites 3 and 4, where Evesham 2 is dominant.
- 8.3.14 Across the CRCs, the Evesham 2 soil association is prevalent in the southern areas of the Study Area, notably under CRC3-7. Soils within the CRCs are more variable in the northern half of the Study Area and include Brockhurst 2, Fladbury 1, Whimble 3, Rivington 1, Worcester, Salwick and Arrow.
- 8.3.15 Table 8-3 shows the areas of land reported for the CRC Area of Search. However, it should be noted that the CRC will have an average working width of 25 m to 35 m and the total land affected by construction will be smaller than the Area of Search defined at Scoping stage.

Table 8-3 National Soil Associations underlying the Study Area

National Soil Association	Characteristic	Site	Area, ha
Arrow (total 118.2 ha)	Deep permeable coarse loamy soils affected by groundwater.	CRC2	15.6
		CRC3	69.8
		Site 2	32.8
Brockhurst 2 (total 53.2 ha)	Slowly permeable seasonally waterlogged reddish fine loamy over clayey and clayey soils.	CRC1	53.2
Compton (total 49.8 ha)	Stoneless mostly reddish clayey soils affected by groundwater.	CRC3	18.9
		Site 2	30.9
Denchworth (total 67.3 ha)	Slowly permeable calcareous clayey soils.	Site 1	67.3
Evesham 1 (total 15.6 ha)	Slowly permeable calcareous clayey soils associated with shallow well drained brashy calcareous soils over limestone.	CRC3	5.5
		Site 3	10.1
Evesham 2 (total 484.3 ha)	Slowly permeable calcareous clayey soils. Some slowly permeable seasonally waterlogged non-calcareous clayey and fine loamy or fine silty over clayey soils.	CRC3	42.6
		CRC4	7.3
		CRC5	4.3
		CRC6	50.0
		CRC7	68.1
		Site 1	2.7
		Site 3	272.4
		Site 4	37.2
Fladbury 1 (total 118.9 ha)	Stoneless clayey soils, in places calcareous variably affected by groundwater.	CRC1	45.6
		CRC3	73.3
Rivington 1 (total 55.1 ha)	Well drained coarse loamy soils over sandstone.	CRC1	55.1
Salop (total 49.1 ha)	Slowly permeable non-calcareous and calcareous reddish clayey soils over mudstone, shallow on steeper slopes.	Site 1	49.1
Salwick (total 262.5 ha)	Deep permeable coarse loamy soils affected by groundwater.	CRC2	6.1
		CRC3	17.3
		Site 1	66.6
		Site 2	172.5
Whimble 3 (total 438.6 ha)		CRC1	103.2
		CRC2	124.7

National Soil Association	Characteristic	Site	Area, ha
	Reddish fine loamy or fine silty over clayey soils with slowly permeable subsoils and slight seasonal waterlogging.	CRC3	23.2
		Site 1	104.1
		Site 2	83.4
Worcester (total 151.5 ha)	Slowly permeable seasonally waterlogged clayey soils with similar fine loamy over clayey soils.	CRC1	19.0
		Site 1	132.5

Soil functions and ecosystem services

- 8.3.16 Soil resources have a wide range of functions, including as a platform for supporting habitats, biodiversity and landscape.
- 8.3.17 The agricultural soils underlying the Study Area do not support protected features within a UK designated site¹³⁸.

Soil carbon

- 8.3.18 The soil resources underlying the site are expected to be mineral soils, as mapped by National Soil Association mapping²⁴⁵, and therefore store relatively low concentrations of carbon. No organo-mineral soils or peat are expected to be present.

Provisional Agricultural Land Classification

- 8.3.19 Volume II, Figure 8.2 presents the ALC grades across the Scheme. No post-1988 survey data²⁴³ is available for the Scheme. According to provisional ALC mapping²⁴⁶, approximately 535 ha of Grade 2 land, 1054 ha of Grade 3 land and 174 ha of Grade 4 land are anticipated to be present across the Study Area as summarised in Table 8-4.
- 8.3.20 The prevalence of Grade 2 land indicates that a significant area of land is considered provisionally as being BMV. Detailed surveys are required to confirm the subdivision of Grade 3 into sub-Grade 3a (BMV land) and sub-Grade 3b (non-BMV land).
- 8.3.21 In Table 8-4, the areas of land are reported for the CRC Area of Search. However, it should be noted that the CRC will be further refined for assessment in the ES and submission of DCO application. Furthermore, the average working width for construction is expected to be approximately 25 m to 35 m, and therefore the total land affected by construction will be smaller than the Area of Search defined at Scoping stage, and smaller than the final CRC defined at application submission.

Table 8-4 Distribution of provisional ALC grades across the Study Area

ALC Grade	Site	Area, ha
Grade 2 (total 535.1 ha)	Site 1	54.2
	Site 2	281.3
	Site 3	8.3
	CRC2	47.5
	CRC3	137.1
	CRC4	6.6
Grade 3 (total 1,054 ha)	Site 1	368.1
	Site 2	11.2
	Site 3	273.9
	Site 4	37.2
	CRC1	141.4
	CRC3	99.0
	CRC4	0.7
	CRC5	4.3
	CRC6	50.0
	CRC7	68.1
	Site 2	27.1
	CRC1	129.0
	CRC3	18.0

Agricultural land holdings

- 8.3.22 This section presents preliminary information on agricultural land holdings. Farm business interviews will be required to obtain more detailed information on the layout and composition of individual farms to inform the EIA.
- 8.3.23 Site 1 comprises five land parcels, designated as sub-Site 1(a) to 1(e), totalling approximately 50 arable fields with a total area of approximately 422 ha. The parcels are owned by two landowners, with 1(a) and 1(b) belonging to one landowner and 1(c) to (e) belonging to the second. The 400 kV Substation and BESS are likely to be located within sub-Site 1(c), which also contains existing overhead lines and will have a combined area of up to 21 ha.

- 8.3.24 Site 2 comprises five land parcels, designated as sub-Sites 2(a) to 2(e), totalling approximately 52 arable fields with a total area of 320 ha. All parcels at Site 2 are owned by the same landowner who also owns land at Site 1(c) to (e).
- 8.3.25 Site 3 comprises seven land parcels, designated as sub-Site 3(a) to 3(g), totalling approximately 282 ha of around 30 arable fields. Two landowners own 3(a) to (b) and 3(c) to (g) respectively.
- 8.3.26 Site 4 covers approximately 37 ha of four arable fields. The landowner of 3(a) and 3(b) also owns the land at Site 4.
- 8.3.27 No information on agricultural land holdings intersecting with the CRCs is available at this stage and farm business interviews will be required to complete the agricultural land holdings assessment.

8.4 Assessment Methodology

- 8.4.1 The following sections outline the proposed methodology for the Soils and Agriculture assessment, which will be undertaken with reference to the ISEP guidance for the assessment of solar projects on agricultural land¹⁹⁶.

Soil resources and agricultural land

- 8.4.2 The proposed methodology for the assessment of effects to soil resources and agricultural land will be undertaken in line with the ISEP Land and Soil EIA guidance. The assessment will consider the susceptibility of soils to damage, their role in providing ecosystem services such as a platform for habitats, landscape and biodiversity and their role as a carbon store. The assessment of agricultural land will consider the quality of the land based on the ALC framework.
- 8.4.3 The assessment will determine effect significance based on the method set out in Section 2.3. The criteria for determining receptor sensitivity and impact magnitude will be modified to align with the ISEP guidance²²⁹.

Agricultural land holdings

- 8.4.4 The proposed methodology for the assessment of effects to agricultural land holdings will be undertaken in line with the HS2 assessment methodology²³⁰. The assessment of agricultural land holdings will consider the potential effects of the Scheme on farm enterprises and assess the extent to which they will remain viable as a result of the Scheme.

- 8.4.5 An agricultural land holding will be defined as an area of land that consists of one or more land parcels or group of fields that are managed by a named person or named business entity as an owner, tenant or in any other commercial agricultural capacity, for the production of food, forage or fibre.
- 8.4.6 The assessment will determine effect significance based on the method set out in Section 2.3. The criteria for determining receptor sensitivity and impact magnitude will be modified to align with the HS2 assessment methodology²³⁰.

8.5 Embedded Mitigation

- 8.5.1 Mitigation measures that will be incorporated into the design, construction and, if relevant, decommissioning processes are outlined below:
- Implementation of a Soil Management Plan (SMP) in line with industry best practice^{241,242} where soils are to be disturbed, to provide guidance on soil handling, storage and restoration. The SMP would be tailored to the site soils, as informed by a detailed soil survey.
 - Re-use of soil in landscaping where viable, to avoid and reduce the loss of soil resources including functions such as soil biodiversity, ecosystem support and soil carbon storage.
 - Minimising land take and disturbance of BMV land (ALC Grades 1 to Subgrade 3a) as far as reasonably practical in favour of using non-agricultural land or land of lower ALC grade.
 - In any areas of temporary land take (e.g. for construction compounds and haul routes), land would be returned to the same ALC grade as before construction.
 - Avoidance or minimisation of land parcel severance and the creation of isolated land parcels that are impractical to farming.
 - Provision of alternative access and infrastructure (overbridges and underbridges) where applicable, to support farming activities.

8.6 Likely Significant Effects

Construction

Soil resources and agricultural land

- 8.6.1 Potential effects to soils and agricultural land during the construction phase are related to the disturbance and loss of soil resources and agricultural land due to the construction of the Scheme. This includes the installation of the solar array areas, BESS, substations, cables and temporary infrastructure to support construction including compounds, haul routes and storage areas.
- 8.6.2 Effects on soil resources and agricultural land are expected to be temporary as all soils will be reinstated and land will be restored to its previous ALC grade following the construction phase for temporary works, such as the CR, and as part of the decommissioning phase for the solar arrays, BESS, and substations.
- 8.6.3 At the BESS and substation locations, topsoil will be stripped and retained on site as part of the landscaping, to protect the soil quality for reinstatement once the infrastructure has been removed at decommissioning.
- 8.6.4 The majority of soils underlying the Scheme have a high clay content and would be considered to have medium sensitivity to structural degradation, while the smaller proportion of coarse soils would have low sensitivity. Activities including vegetation removal and the excavation, stockpiling and re-instatement of soils may result in the degradation of soil structure, a reduction in its quality for agricultural use, release of soil carbon and disruption of soil functions if soil resources are not handled appropriately. With the implementation of the SMP (see Volume III, Appendix A2.2), temporary effects to soil resources are considered unlikely to be significant. Therefore, effects on soil resources during construction are scoped out of the EIA.
- 8.6.5 The temporary removal of land from agricultural use due to the construction of infrastructure will remove BMV land from production. As effects are expected to be temporary (2 years) and reversible, they are not considered to be significant and effects on agricultural land during construction is scoped out of the EIA.

- 8.6.6 The soils underlying the Scheme do not support protected features within a UK designated site. The soils underlying the site are mineral and not expected to contain high levels of carbon or organic matter. Therefore, impacts to soil functions and ecosystems and soil carbon are considered unlikely to be significant and are scoped out of the EIA for all development phases.

Agricultural land holdings

- 8.6.7 The Scheme will result in a short term (less than 2 years) temporary disruption to agriculture during the construction phase within the CRCs. Within the final CRCs defined at DCO application submission and assessed in the ES, a working corridor of 25 m to 35 m average width will be defined at detailed design and required for cable installation, typically by open cut trenching.
- 8.6.8 The construction of the solar array area, BESS and associated elements would result in long-term (60 years) temporary disruption to agricultural production and land holdings, which could lead to a significant effect on agricultural land holdings depending on the proportion of land required from the land holding and nature of agricultural activities on the wider land holding. As discussed for agricultural land, there is the possibility of integrating a system of agrivoltaics to retain some income from agricultural activity. All solar array areas will be designed to allow for the grazing of livestock within those fields. However, further information on the nature of the affected agricultural land holdings is required to inform the assessment. Therefore, the effects of construction on agricultural land holdings are scoped into the EIA.

Operation

Soil resources and agricultural land

- 8.6.9 During the operational phase of the Scheme, there would be no further development of built infrastructure and therefore no further impacts on the soil resources or ALC of the land resulting from construction activities. The land beneath the arrays is anticipated to be seeded with wildflower and grass mixes. The design of the solar arrays will allow for agrivoltaics (the multi-functional use of land for solar power and agricultural production), specifically via grazing of livestock, to maintain the land in reduced agricultural production. Operational effects to soil resources and agricultural land are therefore scoped out.

Agricultural land holdings

- 8.6.10 Effects to agricultural land holdings are considered to predominantly occur during the construction phase on the CRC and Sites and no further effects would occur during operation. Operational effects to agricultural land holdings are therefore scoped out.

Decommissioning

Soil resources and agricultural land

- 8.6.11 During the decommissioning phase, all the solar infrastructure including PV panels, mounting structures, above ground cabling, conversion units, fencing, ancillary infrastructure, BESS and substations would be removed and soil resources restored.
- 8.6.12 The effects on soil resources during the decommissioning phase would be temporary and relate to activities as per the construction phase. With the implementation of the SMP, these effects are considered unlikely to be significant and are scoped out of the EIA.
- 8.6.13 The BESS and other elements involving soil sealing will be removed at the end of the operational life of the Scheme and the land would be restored to the baseline ALC grade. In the solar array areas, the decommissioning phase would fully return the agricultural land to production at its pre-existing ALC grade. As a result, effects on agricultural land during decommissioning are unlikely to be significant and are scoped out of the EIA.

Agricultural land holdings

- 8.6.14 Underground cables are likely to be left in situ during decommissioning and no significant effects are expected for agricultural land holdings within the CRCs.
- 8.6.15 After the decommissioning of solar arrays, agricultural land holdings are expected to return to their farming activities. This will require an aftercare program to bring the land back into production which will be included in the oDEMP.
- 8.6.16 As the agricultural land holdings will have been out of operation at the location of the BESS, substations and potentially solar arrays during the operational phase, decommissioning will result in the areas return to agriculture and there would be no significant effect on agricultural land holdings.

8.7 Assumptions and Limitations

8.7.1 The assessment has been undertaken with the following assumptions:

- Effects are the result of the worst-case scenario;
- Land will be returned to agricultural use after 60 years;
- During the operational phase of the Scheme, there will be no further development of built infrastructure. Periodic maintenance and replacement activities would utilise existing access tracks and therefore no further impacts on the soils or ALC capacity of the land would arise;
- The mounting structure foundations that support the panels can be removed with minimal disturbance at the end of the operational life of the Scheme, hence loss of agricultural land beneath the solar arrays has been assessed as a temporary disturbance; and
- There will be no permanent removal of soil resources from the site. Soils required to be stripped or excavated for access tracks, compounds and open cut trenches for cable installation will be stockpiled and reinstated following construction.

8.7.2 The assessment was undertaken with the following limitations:

- Provisional ALC mapping was used to establish the agricultural land quality baseline in the absence of survey data. This poses a limitation to the understanding of BMV land distribution as no distinction can be made between Subgrades 3a and 3b. Soil surveys are currently being undertaken across Sites 1 to 4 to further understand the ALC grading of the land and will be used to inform the Scheme design and SMP; and
- There is limited information on agricultural land holdings along the CRC Search Area at this stage. Farm business interviews will be undertaken to obtain more detailed information on the layout and composition of individual farms to inform the EIA.

8.8 Conclusions on Scoping

8.8.1 The Soils and Agriculture aspects that are proposed to be scoped in and taken forward for assessment in the ES or scoped out are summarised in Table 8-5.

Table 8-5 Soils and Agriculture Topics Scoped In/Out

Topic	Scoped in/out	Justification
Construction		
Soil Resources	Out	More than 20 ha of low-medium sensitivity soils will be affected by the construction of the Scheme. However, impacts are expected to be temporary (2 years) and reversible, as all soils will be reinstated following construction and decommissioning. Soil resources within Sites 1 to 4 will be surveyed to develop an appropriate SMP to inform the construction of the Scheme and protect the soil quality for reinstatement. Therefore, significant effects on soil resources are not expected.
Soil functions and ecosystem services	Out	The agricultural soils underlying the Scheme do not support protected features within a UK designated site. Therefore, impacts on soil functions and ecosystems are considered unlikely to be significant and are scoped out.
Soil Carbon	Out	Soils are mineral and not expected to contain high levels of carbon or organic matter. Therefore, impacts on soil carbon are considered unlikely to be significant and are scoped out.
Agricultural land	Out	More than 20 ha of BMV land will be affected by the Scheme. However, impacts are expected to be temporary, as the land will be restored to its previous ALC grade following construction on the CRC, and decommissioning for the Sites. Soil resources within Sites 1 to 4 will be surveyed to develop an appropriate SMP to inform the construction of the Scheme and protect the soil quality for reinstatement. The design of the solar array will allow for grazing of livestock and there is the possibility to maintain the land in reduced agricultural production. Therefore, significant effects on agricultural land are not expected.
Agricultural land holdings	In	Agricultural land holdings on the CRC are likely to experience temporary effects during the construction of the Scheme due to the removal of land from agricultural production and disruption to farm activities.. However, further information on the agricultural land holding is required to inform the assessment. Therefore, the effects of construction

Topic	Scoped in/out	Justification
		on agricultural land holdings are scoped into the EIA.
Operation		
All receptors	Out	During the operational phase of the Scheme, there would be no further development of built infrastructure and therefore no further impacts on the soil resources or ALC of the land resulting from construction activities. Therefore, operational effects to soil resources and agricultural land are scoped out.
Decommissioning		
Soil Resources	Out	During the decommissioning phase, all the solar infrastructure would be removed and soil resources restored. An SMP will be implemented to support the protection of soil resources during reinstatement and effects are unlikely to be significant and are scoped out.
Soil functions and ecosystem services	Out	The agricultural soils underlying the Scheme do not support protected features within a UK designated site. Therefore, impacts on soil functions and ecosystems are considered unlikely to be significant and are scoped out.
Soil Carbon	Out	Soils are mineral and not expected to contain high levels of carbon or organic matter. Therefore, impacts on soil carbon and ecosystems are considered unlikely to be significant and are scoped out.
Agricultural land	Out	During the decommissioning phase, all the solar infrastructure would be removed, and land would be restored to the baseline ALC grade. An SMP will be implemented to support the protection of soil resources and effects are unlikely to be significant and are scoped out.
Agricultural land holdings	Out	After the decommissioning of the solar infrastructure, agricultural land holdings are expected to return to their farming activities and there would be no significant effects on agricultural land holdings.

9 Climate Change

9.1 Introduction

- 9.1.1 This Chapter sets out the scope and methodology for assessing the likely significant effects on Climate Change as a result of the Scheme during construction, operation and decommissioning.
- 9.1.2 The proposed scope of the assessment of the effects on climate aligns with the requirements set out in the EIA Regulations² and will provide an assessment of the impact of the Scheme on climate change by the emission of GHGs. The Scheme will predominantly have a beneficial effect on climate by offsetting emissions that would otherwise have been produced through higher carbon emitting electricity generation sources. The assessment will use professional judgement to calculate proposed GHG emissions from products and activities associated with the Scheme. However, due to the level of uncertainty associated with the Scheme design at this early stage of design development, assumptions on potential emissions will be made regarding matters such as the transport of materials and exact product types to be used. Additionally, there is an inherent level of uncertainty regarding estimated future GHG emissions, and assumptions relating to these for the purposes of this assessment are detailed in Section 9.3.
- 9.1.3 The earth absorbs energy from the sun and re-emits it as thermal infrared radiation. GHGs in the atmosphere absorb this radiation, preventing it from escaping into space. The higher the concentration of GHGs, the more heat is retained, leading to an increased risk of climate change, changing rainfall patterns and rising sea levels, as well as extreme weather events including heatwaves, floods, droughts and fires.
- 9.1.4 The potential impacts of GHG emissions are very specific in terms of receptors and impacts because:
- There is only one receptor, the atmosphere;
 - There is only one direct effect, climate change; and
 - All units of CO₂e can be considered to have the same impact no matter where they are emitted.

Study Area

- 9.1.5 The study area includes the Scheme, all GHG emitting activities within the Site, and all relevant GHG emitting activities beyond the Site boundary that contribute to the total GHG emissions of the Scheme during its lifetime. There is not therefore a fixed boundary to the study area and instead a set of emissions sources that are included within the assessment. The sources of these emissions are outlined in section 9.5 of this chapter.
- 9.1.6 It should be noted that the sources of GHG emissions can be wide-ranging in terms of geographical location. They will originate from the Scheme and from sources within the supply chain; therefore, there is no spatial study area, which instead focuses on all activities related to the Scheme.

9.2 Legislation, Policy and Guidance

- 9.2.1 The following legislation has been taken into account for this scoping assessment:
- Schedule 5(f) of the EIA Regulations².
 - Paris Agreement (2015)¹⁰³
 - Climate Change Act (2008) as amended in 2019¹⁰⁴
 - Carbon Budgets Orders, (2009, 2011, 2016, 2021) carbon budgets that are still active are set out in Table 9-1
- 9.2.2 The following national and local policy has been taken into account for this scoping assessment:
- Overarching NPS for energy (EN-1) (2025)¹³
 - NPS for renewable energy infrastructure (EN-3) (2025)¹⁴
 - UK Net Zero Strategy¹¹
 - NPS for Electricity Networks Infrastructure (EN-5) (2025)¹⁵
 - NPPF (2025)¹⁸
 - Construction 2025 (UK Government 2013)²²⁴
 - WaCC, Council Delivery Plan 2025-2027²²⁵
 - WaCC Sustainable Futures Strategy²²⁶
 - WoCC Environment Improvement Plan²²⁷

²²⁴ Department for Business, Innovation and Skills (2023) Construction 2025: Strategy. Available at: <https://www.gov.uk/government/publications/construction-2025-strategy>

²²⁵ Warwickshire County Council (2022) Council Delivery Plan 2025-2027. Available at: <https://www.warwickshire.gov.uk/councilplan>

²²⁶ Warwickshire County Council (2023) Sustainable Futures Strategy. Available at: <https://democracy.warwickshire.gov.uk/documents/s33794/Appendix%201%20for%20Sustainable%20Futures%20Strategy.pdf>

²²⁷ Worcestershire County Council (2024) Environment Improvement Plan. Available at:

- SoADC Climate Change and Nature Recovery Strategy 2024-2029²²⁸
- WyDC Intelligently Green Plan 2020-2030¹⁰⁷

9.2.3 The following guidance has been used to inform the assessment:

- ISEP Assessing GHG Emissions and Evaluating their Significance (GHG Guidance) (2022)²²⁹
- PAS 2080: 2023 Carbon Management in Buildings and Infrastructure²³⁰

9.2.4 UK Government Carbon Budgets are given in Table 9-1. In line with the ISEP guidance, the UK Carbon budgets will be used as a point of reference in assessing the significance of emissions from the Scheme.

Table 9-1 UK Government Carbon Budgets

Carbon Budget	Carbon budget value
Fourth carbon budget (2023 to 2027)	1,950 Million tonnes of carbon dioxide equivalent (MtCO ₂ e)
Fifth carbon budget (2028 to 2032)	1,725 MtCO ₂ e
Sixth carbon budget (2033 to 2037)	965 MtCO ₂ e
Seventh carbon budget (2038 to 2042)	535 MtCO ₂ e

9.3 Baseline Environment

9.3.1 The baseline environment for the assessment is informed by the total GHG emissions from all sources, i.e., all UK GHG emissions, as provided by national statistics, in addition to local and regional emissions for the area in which the Scheme is to be located to inform understanding and significance of the baseline environment. A full site-specific baseline will be included in the ES. The following sections provide further detail on this baseline at different scales, along with the relevant sources of information.

<https://www.worcestershire.gov.uk/sites/default/files/2024-07/65693%20Environment%20Improvement%20Strategy%202024%20Compressed%20V02%20%28WEB%29.pdf>

²²⁸ Stratford-on-Avon District Council (2024) Climate Change and Nature Recovery Strategy 2024-2029. Available at:

<https://www.stratford.gov.uk/doc/213546/name/Climate%20Change%20and%20Nature%20Recovery%20Strategy%20JAN25%20.pdf>

²²⁹ ISEP (2022) Assessing Greenhouse Gas Emissions and Evaluating their Significance. Available at: https://www.isepglobal.org/media/n5wdnley/2022_iema_greenhouse_gas_guidance_eia.pdf

²³⁰ BSI (2023) PAS 2080:2023 Carbon Management in Buildings and Infrastructure. Available at: <https://www.bsigroup.com/en-GB/insights-and-media/insights/brochures/pas-2080-carbon-management-in-infrastructure-and-built-environment/>

National Emissions

- 9.3.2 The UK's net total territorial GHG emissions for the year 2024 were 371 million tonnes CO₂e, which is 54% lower than in 1990²³¹. In 2023, the UK's total territorial provisional emissions were 385MtCO₂e, which is 5.4% lower than in 2022. The fall in CO₂e emissions was driven by a large drop in emissions from the residential sector, with a reduction in fuel use to heat buildings.

Regional Emissions

- 9.3.3 The total annual GHG emissions for Warwickshire County in 2022 were 4,780.8 kilotonnes of Carbon Dioxide equivalent (ktCO₂e), a 7.0% decrease from 2021²³². The total annual GHG emissions for Worcestershire County in 2022 were 3,253.5ktCO₂e, a 4.7% decrease from 2021. These emissions include all the transport, land use change, domestic, public sector, commercial and industry sources within the counties.

Site-specific Emissions

- 9.3.4 At this stage, the site-specific emissions for the baseline environment are unknown. However, the Site primarily consists of agricultural land with limited established vegetation. Other than standard agricultural activities, there are no major GHG emitting activities occurring across the Site. Arable land has limited carbon sequestration value due to the harvesting of crops on a regular basis and is often a net emitter of carbon²³³. Other agricultural activities on Site (e.g. plant machinery) are anticipated to have a negligible level of emissions when compared to the UK Government carbon budgets.

²³¹ Department for Energy Security and Net Zero (2025) 2024 UK Greenhouse Gas Emissions, provisional figures. Available at: <https://assets.publishing.service.gov.uk/media/67e4060df356a2dc0e39b4cd/2024-provisional-greenhouse-gas-emissions-statistics-statistical-release.pdf>

²³² Department for Energy Security and Net Zero (2025) UK Local authority and regional greenhouse gas emissions statistics: 2023-2022. Available at: <https://www.gov.uk/government/collections/uk-local-authority-and-regional-greenhouse-gas-emissions-statistics>

²³³ Natural England (2021) Carbon storage and sequestration by habitat 2021 (NERR094). Available at: <https://publications.naturalengland.org.uk/publication/5419124441481216>

Future Baseline

- 9.3.5 Based on industry knowledge and understanding, the future site-specific baseline emissions without the Scheme are expected to be broadly similar to the current baseline, assuming that existing (largely agricultural) land-uses remain the same. National and regional emissions are expected to decrease¹¹, reflecting decarbonisation measures towards the 2050 net-zero target at Warwickshire, Worcestershire and UK scales.

9.4 Assessment Methodology

- 9.4.1 The proposed assessment will align with the guidance set out in the ISEP Guide: Assessing GHG Emissions and Evaluating their Significance (2022)²⁷⁹. The assessment of the effects of the Scheme on climate is limited to the quantification of the release of GHG emissions during the lifecycle of the Scheme which includes relevant upstream and downstream emissions. It will estimate the scale and nature of GHG emissions during the lifecycle of the Scheme.
- 9.4.2 Emissions of GHGs can affect the atmosphere to different degrees; this is known as their 'Global Warming Potential'. For consistent measurement and analysis, these are aggregated and reported as their CO₂e.

Construction phase emissions

- 9.4.3 Scheme emissions will be calculated using Scheme data from the emerging design and relevant carbon conversion factors. The material data, transportation data, and construction stage data which will be available during calculation, will be discussed with the design team to ensure a robust assessment can be undertaken. Any assumptions made will be backed by references or professional judgment.
- 9.4.4 A quantification of construction phase GHG emissions will be calculated using an appropriate carbon tool and carbon factors sourced from the following:
- Inventory of Carbon and Energy (ICE, versions 3.0 and 4.0)²³⁴; and
 - Department for Energy Security and Net Zero GHG Reporting Conversion Factors²³⁵.

²³⁴ Circular Economy (2026) Embodied Carbon - The ICE Database. Available at: <https://circularecology.com/ice-database.html>

²³⁵ Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy (2025) Government conversion factors for company reporting of greenhouse gas emissions. Available at: <https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting>

Operational phase emissions

- 9.4.5 Energy generated during the operational phase of the Scheme is likely to replace fossil fuels in the energy system of the UK. The generation of energy by the Scheme will therefore lead to a decrease in overall emissions if it replaces higher carbon generating sources. The potential beneficial impact will be measured and explored during the ES assessment.
- 9.4.6 The anticipated operational requirements of the Scheme will be acquired from the proposed design and include the operational energy and material requirements of the Scheme. Where data is not available, benchmark data will be used to calculate the emissions during the operation of the Scheme.
- 9.4.7 The Scheme will require maintenance due to standard wear and tear from operational use as well as possible damage from external events (e.g. flooding). Whilst it is not possible to identify when the latter occurs, a regular maintenance programme will take place to manage the former. Information from the design will be used to identify the anticipated maintenance regime of the Scheme. Emissions from elements that will require partial or full replacement will be calculated via the same method used to calculate those elements during the construction phase (i.e. emissions from material production, transportation and installation).
- 9.4.8 The Scheme will require replacement of assets that reach the end of their lifespan over its 60-year operational phase. The components of the Scheme are anticipated to have the following approximate lifespans:
- PV Panels – 40 years; and
 - Batteries – 15 - 20 years.
- 9.4.9 It is therefore estimated that the PV Panels could require replacement once, and the batteries up to four times, during the operation of the Scheme. The effects of maintenance and replacement activities are anticipated to be lesser than the Construction Phase due to the mounting frames, cabling, substation and other infrastructure already being in situ and not needing replacement. These activities would be controlled and managed through appropriate management plans and by the requirements of the DCO.

Land Use & Land-use Change

- 9.4.10 Land use and land-use change (LULUC) plays an important role in the balance and transfer of carbon through global carbon cycles. Carbon is stored in and exchanged between the atmosphere and biosphere, which includes plants and soils. Alteration of land-use will impact the carbon stocks held within the biosphere and, therefore, the exchange of carbon with the atmosphere.
- 9.4.11 These changes can have adverse climate change impacts but also provide key mitigation opportunities by removing carbon from the atmosphere and storing it in terrestrial biospheres. For example:
- Change to land-use may lead to the release of carbon dioxide (CO₂) into the atmosphere from vegetation and soils; and
 - Creation and enhancement of carbon stocks in vegetation and soils can encourage increased removal of GHGs from the atmosphere.
- 9.4.12 Baseline and post-construction estimates will be assessed to determine whether there is a change in the net annual sequestration or emissions rate within the Scheme boundary as a result of changes in type and size of habitat on site. Additionally, the change in the carbon stock of the Scheme will be calculated to determine whether the construction of the Scheme will lead to a release of GHGs through the loss of habitats.
- 9.4.13 A 'value-transfer' approach will be taken to ascribing carbon stock data, whereby data from existing studies of similar land-use types will be applied to the study area. Habitat data for the Scheme will be determined through site surveys as part of the Phase 1 Habitat Survey. Based on the habitats present, the data sources used includes the following:
- Natural England (2021) Carbon emissions, removals and habitat storage data²³⁶; and
 - IPCC's 2006 National GHG Inventories²³⁷.

²³⁶ Natural England (2021) Carbon Emissions, Removals and Habitat Storage Data. Available at: <https://publications.naturalengland.org.uk/publication/5419124441481216>

²³⁷ Intergovernmental Panel on Climate Change (2006) 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Available at: <https://www.ipcc.ch/report/2006-ipcc-guidelines-for-national-greenhouse-gas-inventories/>

Significance Assessment

- 9.4.14 There is no legal limit for GHG emissions for any one development. The ISEP guidance²¹⁹ suggests that the level of significance should be related to how a Scheme contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050.
- 9.4.15 The ISEP²¹⁹ guidance notes that practitioners need to consider whether project GHG emissions are aligned to achieving net zero by 2050, using the science based 1.5°C trajectory. Where this is not the case, then the effects are judged to be moderate adverse or major adverse and thus can be classed as a significant effect.
- 9.4.16 Projects that are compatible with the trajectory can have their effects classed as minor adverse, or where the Scheme achieves GHG emission mitigation that goes beyond the trajectory, negligible. In cases where emissions are judged to be minor or negligible, the effects are not considered to be significant.
- 9.4.17 Projects that cause GHG emissions to be avoided or removed from the atmosphere can be considered to have a beneficial effect, which is a significant effect. The ISEP²¹⁹ 2022 guidance notes that the UK Government 2050 net-zero target and interim carbon budgets are considered by the CCC to be compatible with the required science based 1.5°C trajectory.
- 9.4.18 The percentage contribution of the Scheme to the national carbon budget will be determined in accordance with ISEP 2022 guidance²⁷⁹ on significance. Although the ISEP²⁷⁹ guidance suggests that for context, it would be good practice to consider a project's GHG emissions in relation to sector-based targets, there are currently no sector budgets set by the UK CCC.

9.5 Embedded Mitigation

- 9.5.1 The Scheme design will be assessed to ensure that any resulting GHG emissions are minimised to reduce the impact of the Scheme on the climate. Consideration will be given to the PAS 2080 carbon reduction hierarchy (Avoid, Switch, Improve) to help identify design, material and construction opportunities that can reduce GHG emissions from the Scheme.

- 9.5.2 Typically, the greatest opportunity for reducing GHG emissions lies at the Scheme's outset, when the strategy for achieving objectives is determined. By changing the approach and minimizing the need for extensive engineering, materials and construction processes can be significantly reduced. Opportunities for major GHG emissions reduction reduce as the Scheme progresses through the design phases into construction.
- 9.5.3 In Table 9-2, a number of potential mitigation measures are suggested that could reduce GHG emissions across the lifecycle of the Scheme. These are only a small example of the mitigation measures that could be implemented, which will be developed as the design of the Scheme progresses and would be included as part of the oCEMP, oOEMP and oDEMP.

Table 9-2 Potential mitigation measures

Lifecycle stage ²³⁸	Mitigation measure	PAS 2080 Carbon reduction hierarchy
Construction – A1-3 and A4	Embankment material and fill required throughout construction should be sourced from within the Site, if possible.	Avoid
Construction – A1-3	Increase the percentage of recycled content within the steel, iron and other materials used across the Scheme.	Switch
Construction – A4	Source materials from local suppliers and contractors to reduce transportation distances.	Improve
Construction – A5	Use of electric or Hydrotreated Vegetable Oil powered plant and equipment.	Switch
Operation – B1	Increase the amount of BNG, both on Site and off Site, for the Scheme through the creation of new habitats.	Improve

²³⁸ These lifecycle stages are in line with the lifecycle stages of BS EN 17472:2022.

9.6 Likely Significant Effects

- 9.6.1 The construction of the Scheme will lead to increased GHG emissions due to activities such as producing construction materials, transporting materials and workers to the Site, and various construction-related activities like fuel combustion, land use change, and waste management. These emissions are likely to constitute a very small percentage of the UK's overall carbon budget, and in isolation, are unlikely to affect the Government's ability to meet its carbon reduction targets, therefore resulting in a non-significant effect on climate.
- 9.6.2 The operational phase of the Scheme will generate a significant amount of low-carbon energy that will feed into the national grid energy system and be distributed across the country. The generation of low carbon energy will, in part, replace the energy generated from higher-carbon emitting sources (e.g. Gas Power Plants) leading to a reduction in GHG emissions as a direct result of the Scheme. This reduction in emissions will contribute to the reduction in GHG emissions required for the UK Government to meet its Carbon Budgets and therefore provides a beneficial impact on the climate, therefore resulting in a significant effect on climate.
- 9.6.3 The operational phase of the Scheme will however likely lead to some GHG emissions due to activities including, but not limited to, maintenance, repair and replacement of solar PV equipment over the lifespan of the Scheme, as well as staff travel to the Site. Changes in land use as a result of the Scheme may lead to a decrease in emissions through carbon sequestration depending on the land-use changes and biodiversity net-gain requirements, however these are not anticipated to outweigh the GHG emissions from operational activities. These emissions are likely to constitute only a small percentage of the UK's overall carbon budget, and in isolation, is unlikely to affect the Government's ability to meet its carbon reduction targets, therefore resulting in a non-significant effect on climate.
- 9.6.4 The decommissioning phase of the Scheme will likely lead to some GHG emissions due to activities such as deconstructing infrastructure and the transportation of waste and its disposal. However, these emissions anticipated to be minor in comparison to the whole Scheme emissions and to contribute only a small quantity to the UK's overall carbon budget. Therefore, the emissions from the decommissioning phase are unlikely to affect the Government's ability to meet its carbon related targets and therefore result in a non-significant effect.

9.7 Assumptions and Limitations

- 9.7.1 The major limitation of the assessment will be the availability and accuracy of data to determine the construction and operational GHG emissions that will derive from the Scheme. This will determine whether any assumptions must be made to enable for an effective assessment of GHG emissions to occur.
- 9.7.2 Where assumptions will be made as part of the assessment, they will assume a worst-case scenario (i.e. the scenario in which the greatest level of GHG emissions will occur).
- 9.7.3 Assumptions used in the assessment of GHG emissions will be included in the ES.
- 9.7.4 Uncertainty is inherent in assessing climate change and associated emissions due to the evolving scientific understanding of future conditions. This assessment will apply industry best practice and use the most up-to-date emissions factors available to minimise the influence of these uncertainties. All findings will reflect the current evidence base and information accessible at the time the assessment is carried out.

9.8 Conclusion on Scoping

- 9.8.1 The ES will undertake an assessment, quantifying the GHG emissions of the Scheme of the lifecycle modules scoped into the assessment (see Table 9-3). These emissions will be assessed using the ISEP GHG guidance²⁷⁹ and against the UK Carbon Budgets, to conduct a significance assessment.

Table 9-3 Summary of Climate Change Scoping

Topic	Scoped in/out	Justification
Construction		
Construction phase GHG emissions	In	GHG emissions from the construction phase of the Scheme will contribute to climate change. The magnitude and significance of these emissions will need to be determined as part of the ES assessment.
Operation		
Operational phase GHG emissions	In	The generation of energy from the Scheme will likely replace fossil fuel sources of energy generation and lead to a decrease in overall emissions.
Decommissioning		
Decommissioning phase GHG emissions	Out	GHG emissions from the decommissioning phase of the Scheme are unlikely to affect the Government's ability to meet its carbon reduction targets, therefore resulting in a non-significant effect on climate.

10 Transport and Access

10.1 Introduction

- 10.1.1 This chapter outlines the approach to assessing the potential transport and access effects associated with the Scheme throughout construction, operation and decommissioning.
- 10.1.2 This chapter sets out the assessment methodology, identifies the relevant transport networks and receptors to be considered, and defines the geographic extent of the assessment.
- 10.1.3 The assessment will consider the potential effects on the Local Road Network (LRN), the Strategic Road Network (SRN), Non-Motorised Users (NMUs) including pedestrians, cyclists and equestrians, PRow, and public transport services where these may interact with the Scheme.

10.2 Legislation, Policy and Guidance

- 10.2.1 The following policy has been taken into account for this assessment. There is no legislation of particular relevance to this assessment:
- Overarching NPS for Energy (EN-1)¹³
 - NPS for Renewable Energy Infrastructure (EN-3)¹⁴
 - NPS for Electricity Networks Infrastructure (EN-5)¹⁵
 - NPPF (2025)¹⁸
 - DfT Circular 01/2022: The Strategic Road Network and Delivery of Sustainable Development²³⁹
 - PPG: Travel Plans, TAs and Statements (2014)²⁴⁰
- 10.2.2 The relevant local policy is provided below:
- WaCC – Local Transport Plan (LTP)²⁴¹
 - Stratford-upon-Avon Area Transport Strategy (2018)²⁴²

²³⁹ Department for Transport and National Highways (2022) Strategic road network and the delivery of sustainable development. Available at: <https://www.gov.uk/government/publications/strategic-road-network-and-the-delivery-of-sustainable-development>

²⁴⁰ Ministry of Housing, Communities and Local Government, Ministry of Housing, Communities & Local Government (2018 to 2021) and Department for Levelling Up, Housing and Communities (2014) Travel Plans, Transport Assessments and Statements. Available at: <https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements>

²⁴¹ Warwickshire County Council (2026) Local Transport Plan – Publications. Available at: <https://www.warwickshire.gov.uk/directory-record/2149/local-transport-plan-2011-2026>

²⁴² Stratford on Avon District Council (2018) Stratford-upon-Avon Transport Strategy. Available at: <https://www.stratford.gov.uk/doc/206646/name/draft%20stratford%20area%20transport%20strategy%20dec%202017.pdf>

- Redditch Local Plan No.4 (2011–2030) – transport and movement policies²³
- WoCC – Local Transport Plan (LTP4)²⁴³
- SWDP²⁴

10.2.3 Guidelines for the Environmental Assessment of Transport and Access published by ISEP (the ISEP Guidelines²⁴⁴) have also been considered in this chapter. The ISEP Guidelines provides practitioners with good practice advice on how to carry out the assessment of traffic and movement of people as part of a statutory EIA or non-statutory Environmental assessment.

10.2.4 In addition to the ISEP Guidelines, PINS's Technical Advice Page for Scoping Solar Development³² provides further relevant direction. The guidance sets clear expectations for how applicants should define and justify the scope of transport-related assessments at the EIA scoping stage, ensuring that sufficient information is presented to understand likely significant effects and support transparent scoping-out decisions. The guidance also emphasises alignment with the policy tests in NPS EN-1, EN-3 and EN-5, which require applicants to consider transport disruption, engage with highways authorities, and prepare robust transport appraisals where significant effects may occur.

10.3 Baseline Conditions

Highway Network

10.3.1 This section describes the characteristics of the surrounding highway network (Volume II, Figure 10.1), including its function, hierarchy, traffic composition and overall connectivity.

A46

10.3.2 The Site is located adjacent to the A46, a key strategic route forming part of the SRN. In the vicinity of the Site, the A46 operates as a two-way dual carriageway running broadly north–south between Alcester (Stratford-on-Avon District, Warwickshire) and Evesham (Wychavon District, Worcestershire). The route bisects several of the Site 2 sub-Sites associated with the Scheme and is anticipated to serve as the primary

²⁴³ Worcestershire County Council (2017) The Local Transport Plan. Available at: <https://www.worcestershire.gov.uk/council-services/travel-and-highways/strategy-and-planning/local-transport-plan>

²⁴⁴ ISEP (2023) Environmental Assessment of Traffic and Movement. Available at: <https://www.iema.net/media/5mrmquib/iema-report-environmental-assessment-of-traffic-and-movement-rev07-july-2023.pdf>

access corridor for construction traffic travelling between the Site and the wider regional network.

- 10.3.3 To the south of Alcester, the A46 bypasses the town and meets the A435 at a roundabout, providing connections towards Redditch and Birmingham. From this point, the A46 continues as a dual carriageway towards Evesham, intersecting with the B439 at a roundabout near Bidford-on-Avon. Shortly after this junction, the route crosses between the Warwickshire and Worcestershire county boundaries before approaching Harvington. At the northern end of the Evesham bypass, the A44 merges with the A46 at a roundabout.
- 10.3.4 Along this section, the A46 is subject to the national speed limit (70 mph). Street lighting is generally limited to junctions and other key nodes, with only intermittent lighting provided along the surrounding rural stretches.
- 10.3.5 Due to its strategic function, the A46 provides limited pedestrian and cycle facilities, and does not interact with the NCN. Pedestrian and cyclist crossings of the corridor are generally provided via local road connections.
- 10.3.6 From the A46, several nearby local and regional routes are anticipated to act as principal distribution corridors for traffic accessing the Site.

A422

- 10.3.7 The A422 forms an important east–west corridor across south-central England, providing connectivity between Worcester and Bedford and linking key settlements including Stratford-upon-Avon, Banbury, and Brackley. In the vicinity of the Scheme, the A422 operates predominantly as a rural single carriageway road, subject to a 50-mph speed limit.
- 10.3.8 This section of the A422 forms an important connector within the local and regional highway network, linking the A46 to the east with Worcester to the west. Due to its rural context and strategic function, pedestrian provision along this part of the route is limited, with footways present only within or near settlement boundaries. Dedicated cycling infrastructure is not provided along this section of the A422, and it does not form part of the NCN. Cyclist movements therefore take place on-carriageway.
- 10.3.9 Street lighting along the corridor is generally absent in rural areas, with lighting typically confined to junctions and settlement edges.
- 10.3.10 The A422 is anticipated to function as one of the key secondary distribution routes for traffic travelling to and from the Site.

Lower Classified Roads

- 10.3.11 Local access is provided by lower-classified routes including B-roads, C-roads and unclassified rural lanes, which provide links to smaller settlements and local amenities. These roads often have more constrained characteristics, such as limited carriageway width and absence of footways. As a result, they may be more sensitive to increases in traffic volumes, particularly heavy vehicles. The width, alignment and suitability of these routes will be confirmed once further details on routing are available.

Other Transport Receptors

- 10.3.12 The baseline environment will also include non-motorised and public transport networks. This will encompass:
- National and local cycle routes, including any strategic, recreational or commuter corridors that pass near or through the Scheme area. It is noted that the most southern land parcel associated with the Scheme is located near NCN route 41 which predominantly runs northeast from Honeybourne towards Long Marston.
 - There are multiple PRow, including footpaths, bridleways and byways that intersect land parcels or run alongside access routes.
 - Although much of the land by the Site is rural, there are various sensitive receptors, all of which will be identified and considered as part of the baseline assessment.

Future Baseline Conditions

- 10.3.13 The EIA process will consider the existing baseline conditions within the traffic and transport study area and the future baseline conditions (as far as reasonably practicable). This future baseline will consider:
- Forecast traffic growth based on recognised national or local growth factors.
 - Committed developments within the study area that may generate additional vehicle movements.
 - Planned or committed transport infrastructure improvements that could alter flows, routing behaviour or road capacity.
- 10.3.14 Where relevant, the interaction between future baseline changes and the Scheme's traffic demand will be considered.

10.4 Assessment Methodology

- 10.4.1 The Transport and Access assessment will quantify the additional traffic flows to be generated by the Scheme during the construction, operational, and decommissioning phases. These forecasted traffic flows will be assessed against baseline traffic data to determine if an impact is likely to occur. The scope and duration of the forecast effects will be quantified for each phase.
- 10.4.2 A detailed analysis of the LRN and SRN will then be undertaken to identify key locations where potential traffic and transport impacts may occur. This analysis will identify road network constraints and inform the access strategy for construction related vehicles (i.e. types, numbers, frequency and timings).
- 10.4.3 The access strategy to be utilised during the construction of the Scheme will be consulted upon with the local and national highways authorities.
- 10.4.4 In addition, the ES will identify the proposed construction compounds, which will be further developed as the design progresses, to indicate the potential size and broad spread of construction compounds that are likely to be required.

Study Area

- 10.4.5 In accordance with the ISEP Guidelines²⁴⁴, the study area has been defined by identifying any link or location where it is considered that significant impacts and effects could occur as a result of the Scheme. This includes roads in the vicinity of construction compounds, site access points, and corridors expected to accommodate construction traffic. Both the LRN and any sections of the SRN likely to be used for construction traffic movements will be incorporated.
- 10.4.6 As part of this process, all potential temporary and permanent access points will be included within the study area.
- 10.4.7 At this stage, the trip generation and assignment for the operational and construction phases has not been confirmed. As these details become available, the study area will be refined to identify the sections of the LRN and SRN which are likely to be affected. This refined study area will be developed in consultation with the relevant highway authorities to ensure it captures all locations where change may be experienced and where mitigation may be required.

- 10.4.8 Given the Scheme's proximity to the A46, this route is expected to serve as the primary access for all traffic accessing the Site from the wider region. The A46 forms part of the SRN and runs north–south from Arrow and Oversley Green towards Evesham, bisecting several sub-Sites associated with the Scheme. Owing to its strategic role, the A46 is well suited to accommodate traffic accessing the Site.

Assessment Criteria

- 10.4.9 The ISEP guidelines²⁴⁴ state that it is essential to identify particular population groups that may be sensitive to changes in traffic conditions. The following user groups will be considered:
- Non-motorised users;
 - Public right of way users;
 - Motorists and freight vehicles;
 - Public transport; and
 - Emergency services.
- 10.4.10 The following list from the ISEP guidelines²⁴⁴ identifies special interests that should be considered when defining sensitive receptor geographic locations:
- People at home;
 - People at work;
 - Sensitive and/or vulnerable groups (including young age; older age; income; health status; social disadvantage; and access and geographic factors);
 - Locations with concentrations of vulnerable users (e.g. hospitals, places of worship, schools);
 - Retail areas;
 - Recreational areas;
 - Tourist attractions;
 - Collision clusters and routes with road safety concerns; and
 - Junctions and highway links at (or over) capacity.
- 10.4.11 In terms of the assessment of the environmental impacts of traffic, the ISEP guidelines states that the following two 'rules' should be followed:
- **Rule 1** – Include highway links where traffic flows will increase by more than 30% or where the number of Heavy Good Vehicles (HGVs) will increase by more than 30%; and
 - **Rule 2** – Include any other specifically sensitive areas where traffic flows have increased by 10% or more.

- 10.4.12 Rules 1 and 2 are used as a screening tool to determine whether a full assessment of effects is required for any identified highway link. Highway links which are identified as low or medium sensitivity will be considered against the Rule 1 threshold. Highway links which are identified as high sensitivity will be considered against the Rule 2 threshold. Where predicted changes in traffic flow fall beneath these levels, a full assessment of effects will not be required and no significant effects upon that highway link will occur.
- 10.4.13 Professional judgement will be used when applying the two rules, as roads with very low baseline traffic flows could result in exceedances of the thresholds with only a very small increase in traffic. Where professional judgement is applied, justification for any deviations from the criteria set out in the following sections will be provided. This will ensure that all assessments are robust and transparent, with clear reasoning behind the conclusions.
- 10.4.14 The assessment will therefore identify the sensitivity of affected transport routes, considering the presence and location of sensitive receptors or route users. The determination of receptor sensitivity will be based on the criteria of value, adaptability and tolerance. Sensitivity will be categorised using professional judgement following the principles set out in Table 10-1.

Table 10-1 Definitions of Sensitivity

Sensitivity	Typical Descriptors
High	Receptors of greatest sensitivity to traffic flows, such as schools, playgrounds, accident blackspots, retirement homes, areas with no footways with high pedestrian footfall, congested areas.
Medium	Receptors with some sensitivity to traffic flow, such as Conservation Areas, listed buildings, tourist attractions, and residential areas.
Low	Receptors with low sensitivity to traffic flows, and those distant from affected roads.
Negligible	Receptors with no material sensitivity to traffic flows.

Severance of communities

- 10.4.15 The ISEP guidance sets out a range of indicators for determining the magnitude of severance effects. It suggests changes in traffic flows and associated magnitude of impacts as:
- <30% - negligible magnitude of change;
 - 30-60% - minor magnitude of change;

- 60-90% - moderate magnitude of change; and
- >90% - major magnitude of change.

10.4.16 Caution needs to be observed when applying these thresholds, as very low baseline flows are unlikely to experience (severance) impacts even with high percentage changes in traffic.

Road vehicle driver and passenger delay

10.4.17 The ISEP guidance does not provide set thresholds for determining when a change in driver delay is likely to be significant and instead refer to any junction capacity assessments that may be undertaken, alongside professional judgement.

10.4.18 It is proposed to use professional judgement and the overall changes in traffic flows with reference to the typical ISEP guidance thresholds (<30% is negligible, 30-60% is minor, 60-90% is moderate and >90% is major), to determine whether there is likely to be any significant changes to driver delay.

Non-motorised user delay

10.4.19 The ISEP guidance recommends the use of professional judgement to determine whether pedestrian delay is significant across individual links, taking into consideration the varying characteristics of local conditions within the Study Area. For the purposes of this assessment, the following thresholds related to changes in total traffic are applied alongside professional judgement and interpretations of the local conditions:

- <30% - negligible magnitude of change;
- 30-60% - minor magnitude of change;
- 60-90% - moderate magnitude of change; and
- >90% - major magnitude of change.

Non-motorised amenity

10.4.20 The ISEP guidance notes that a tentative threshold for determining significance of changes in non-motorised user amenity is when traffic flows are halved/doubled (which would lead to a high impact). However, the guidance notes that any changes should be considered with professional judgement in light of the local conditions.

10.4.21 It is proposed professional judgement taking into consideration the likely demand and provisions for non-motorised users across the links.

Fear and intimidation on and by road users

- 10.4.22 The ISEP guidance refers to an assessment for the 'degree of hazard' in Table 3-1 of the guidance to assess fear and intimidation. Each road link in the study area will be assessed to determine the values of these parameters using traffic data. These values will then be compared to the thresholds defined in Table 3-1 to determine the degree of hazard score, from 0 up to 30.
- 10.4.23 In determining the degree of hazard, the assessment will apply a score based on three parameters:
- Average daily vehicle flows – this covers the total volume of all vehicles across an 18-hour period from a road link. Higher volumes indicate a greater hazard;
 - Total HGV flows – the total volume of HGVs over an 18-hour day. A higher HGV volume represents a greater perceived hazard; and
 - Average speeds – the mean speed of vehicles on the road link. Higher speeds are associated with greater hazard.
- 10.4.24 Once calculated, the total hazard score will be presented to determine the level of fear and intimidation, as follows:
- 0-20 – negligible;
 - 21-40 – minor;
 - 41-70 – moderate; and
 - 71+ - major.
- 10.4.25 A comparison of the degree of hazard will be undertaken for the peak construction year with/without the construction flows and against the baseline traffic flows to determine any changes. Step changes are defined as increases in All Vehicle (AV) or Heavy Vehicle (HV) flow compared to baseline. A low step change is an increase of <400 vehicles increase in average 18hr AV two-way all vehicle flow; and/or <500 HV increase in total 18hr HV flow. A medium step change is an increase of >400 vehicles/day or >500HGVs/day. A high step change is two increases in separate flow thresholds from baseline.
- 10.4.26 The magnitude of impact will then be determined as follows:
- Negligible – no step change from baseline;
 - Minor – one step change from baseline (400 daily vehicle trip increase);
 - Moderate – one step change from baseline (>400 daily vehicle trip increase); and
 - Major – two step changes from baseline.

Road user and pedestrian safety

- 10.4.27 The ISEP guidance suggests that the magnitude of Road Safety impacts will be related to identifying collision clusters and collision rates through a detailed review of baseline characteristics to determine road safety and sensitivity. However, it does not provide any defined thresholds. Instead, the ISEP guidance advises that professional judgement will be needed to assess the implications of local circumstances, or factors which may elevate or lessen risks of accidents occurring.

Hazardous/large loads

- 10.4.28 The ISEP guidance does not set specific thresholds for the consideration of hazardous and large loads, only that professional judgement should be utilised based on the frequency and nature of any hazardous and/or large loads.

PRoW Impact

- 10.4.29 Magnitude of impact on PRoW will be determined using the same principles applied to NMUs, with professional judgement used to reflect local conditions. The following factors will be used to define magnitude:
- Duration of disruption (short-, medium-, long-term);
 - Length and quality of diversion;
 - Change in user amenity, including noise, dust, visual intrusion, or proximity to construction traffic;
 - Severance or loss of connectivity;
 - Safety considerations, including increased exposure to HGV traffic and hazard scores derived from ISEP's fear and intimidation methodology; and
 - Mitigation measures, including signage, controlled crossings, banksmen, surface improvements and alternative routes.
- 10.4.30 Using these parameters, PRoW impacts will be categorised as negligible, minor, moderate or major, in keeping with the wider ISEP magnitude framework.

Summary

- 10.4.31 Based upon the advice contained within the ISEP guidelines, Table 10-2 sets out the considerations for defining the magnitude of change.

Table 10-2 Magnitude of Change Summary

Sensitivity	Negligible	Minor	Moderate	Major
Severance of communities	<30%	30-60%	60-90%	>90%
Road vehicle driver and passenger delay	<30%	30-60%	60-90%	>90%
Non-motorised user delay	<30%	30-60%	60-90%	>90%
Non-motorised amenity	Change in traffic flow (or HGV component) less than 100%		Change in traffic flow (or HGV component) more than 100%	
Fear and intimidation on and by road users	No step change from baseline	One step change from baseline (<400 vehicles)	One step change from baseline (>400 vehicles)	Two step changes from baseline
Road user and pedestrian safety	Defined from a review of Personal Injury Collision (PIC) data along highway links and the predicted changes in traffic flow			
Hazardous/large loads	Defined by an assessment of the suitability of the access routes to accommodate AIL			
Impact to ProW	No diversions or amenity changes	Short-term diversion with minimal additional distance; slight amenity reduction	Diversions causing noticeable additional journey time; temporary severance; reduced amenity; potential safety concerns	Long-term closure or major diversion resulting in significant severance, substantial amenity loss, or elevated hazard

Effect Significance

- 10.4.32 The Leopold matrix set out in Table 2-3 in Chapter 2 provides the formal mechanism for determining significance, using the receptor sensitivity and impact magnitude criteria set out in the above sections.

Potential Cumulative Effects

- 10.4.33 There is potential for cumulative effects on sensitive receptors where the construction of the Scheme is considered alongside other existing, consented or reasonably foreseeable developments. Potential cumulative traffic and transport effects arising during the construction phase will be assessed within the ES.
- 10.4.34 Other developments that are predicted to generate traffic within the defined traffic and transport study area during the construction of the Scheme, and which may contribute to cumulative effects, will be identified as part of the cumulative effects assessment.
- 10.4.35 Where other development proposals are anticipated to be under construction over the same period, these will be considered collectively and assessed cumulatively against the baseline scenario. This assessment will identify any potential cumulative traffic and transport effects and determine whether any additional or coordinated highway or transport mitigation measures are required.

10.5 Embedded Mitigation

- 10.5.1 An oCTMP will be prepared and submitted as part of the DCO application, supplementing the Traffic and Access chapter of the ES. The oCTMP will provide a clear framework for managing construction-related vehicle movements to and from the Scheme, including all associated activity along the CRC. Its purpose is to ensure that traffic impacts during the temporary construction period are minimised and that safe, efficient operation of the local highway network is maintained throughout.
- 10.5.2 The oCTMP will set out the proposed construction access arrangements, construction vehicle routing, anticipated construction traffic generation, and the mitigation and management measures to be implemented. These measures will likely include, but will not be limited to, the following:
- A commitment to avoid deliveries during network peak hours and (where relevant) during school drop-off and pick-up times;
 - A commitment to coordinate construction deliveries with other developments in the local area where practicable;
 - All vehicles transporting loose materials off-site to be sheeted;
 - Use of banksmen where required to safely manage vehicle manoeuvres and conflict points;
 - Display of key contact details on notice boards for local communities;

- Provision of wheel-washing facilities where required to prevent the transfer of mud onto public highways;
- Pre- and post-construction highway condition surveys at key junctions and access points;
- Temporary signage to direct construction traffic along approved routes;
- Establishment of construction compounds, including an appropriate number of parking spaces to prevent overspill onto the local network;
- A requirement for engines to be switched off when not in use to reduce noise and emissions;
- Dust-control measures, including water-spraying where necessary; and
- Use of a road sweeper where required to keep the public highway free of dust, mud and debris.

10.5.3 Given the nature of the works, traffic and access effects during the operation, maintenance, and decommissioning phases are expected to be lower than those experienced during construction, with any significant construction-related impacts anticipated to be temporary in duration.

10.6 Likely Significant Effects

Project Basis for Scoping

Trip-Generation: Construction and Decommissioning

10.6.1 A range of vehicles are expected to access the Site during both the construction and decommissioning phases. These are likely to include, but not be limited to, the following:

- **LGVs** – such as vans and small flatbed vehicles, used for plant maintenance, delivery of Personal Protective Equipment (PPE), fixings and small components, sundry items, canteen supplies, couriers, and parcels;
- **HGVs** – including 2–6 axle rigid and articulated lorries, used for the delivery of materials and components such as PV mounting structures and panels, as well as plant delivery (e.g. piling rigs), spoil removal, aggregates, cabling, containerised equipment, fencing and other bulk materials;
- **Cars and minibuses** – for transporting construction personnel, with minibus capacity currently assumed to be seven seats; and
- **Abnormal Indivisible Loads (AILs)** – for substation transformers, requiring girder frame trailer and tractor combination, and other

large scheme components such as cable drums or other large scheme components.

- 10.6.2 It is recognised that certain construction components (e.g., large transformers) may require transport as AILs. For context, abnormal loads typically include vehicle/load movements exceeding 44 tonnes gross weight, 2.9 m overall width, or 18.65 m rigid length and are managed under the STGO framework and related enforcement guidance. Movements are notified in advance to police, highway and bridge authorities—ordinarily via the Electronic Service Delivery for Abnormal Loads (ESDAL) system—and are planned with specialist hauliers to define suitable routes from the SRN, time-of-day controls, and any escort or temporary works requirements. A proportionate AIL routing and feasibility assessment will be included within the ES, with final AIL numbers confirmed through detailed design and consultation with the relevant authorities.
- 10.6.3 The construction vehicle trip-generation estimates for the Scheme will be informed by trip-generation data from previous solar NSIPs promoted by IGP, including those consented and close to commencement of construction. These schemes share similar characteristics to the Scheme, including comparable generating capacity, dispersed land parcels, and rural settings.
- 10.6.4 As part of the project scoping process, an initial high-level review has been undertaken to identify indicative routing for vehicles accessing the Site from the SRN. As outlined previously, the A46 forms part of the SRN and bisects the Site and is therefore anticipated to serve as a primary access route.
- 10.6.5 It should be noted that these routes are indicative and subject to refinement as the design and assessment progress. They are included at this stage for illustrative purposes only.

Sub-Sites Trip-Generation (HGVs and LGVs)

- 10.6.6 At this scoping stage, detailed construction traffic trip-generation associated with the sub-Sites cannot yet be confirmed, as this will depend on the final construction programme, phasing strategy and delivery methodology. Construction activity is not expected to follow a flat profile, with peak periods likely to occur when multiple teams are operating concurrently across the Site.

- 10.6.7 Indicative trip-generation for the sub-Sites will therefore be defined at the ES stage using a first-principles approach, informed by the anticipated construction activities, programme sequencing and the spatial distribution of works across the Site. This will enable realistic worst-case construction traffic scenarios to be identified for assessment purposes.
- 10.6.8 For the purposes of scoping, individual sub-Sites have been grouped based on potential shared access arrangements and haul roads, with construction traffic apportioned broadly in relation to the scale and extent of works at each location. Traffic associated with substations and BESS infrastructure will be considered within the overall construction traffic estimates for the relevant parcels. These assumptions will be refined as the design develops and through ongoing engagement with the relevant highway authority.

CRC Trip-Generation (HGVs and LGVs)

- 10.6.9 At this scoping stage, detailed trip-generation associated with construction of the CRC cannot yet be confirmed, as this will be dependent on the final construction programme and delivery methodology.
- 10.6.10 The scale and distribution of HGV and LGV movements will therefore be defined at the ES stage using a first-principles approach, informed by the construction methodology, programme sequencing and the nature of works required at individual sections of the CRC. This will enable realistic worst-case construction traffic scenarios to be identified for assessment.
- 10.6.11 Where practicable, construction techniques will be employed at key road crossings and along strategic routes to minimise disruption to the highway network and reduce the need for road closures, for example by utilising trenchless cable installation techniques.

Staff Trip-Generation: Solar Farm and CRC

- 10.6.12 At this scoping stage, the detailed construction programme and phasing for the Scheme have not yet been confirmed and, as such, precise construction workforce numbers and associated vehicle trip-generation cannot currently be defined.

- 10.6.13 It is anticipated that construction will require a temporary workforce comprising a mix of labour, specialist contractors and technical staff, with workforce levels varying over the construction period. Trip-generation will be defined at the ES stage using first-principles assumptions informed by the construction methodology, programme sequencing and benchmarking against comparable large-scale solar and energy infrastructure projects, to identify realistic worst-case scenarios.
- 10.6.14 It is expected that the majority of construction staff would use shared transport measures where practicable, such as minibuses or shuttle services promoted where practicable to minimise vehicle trips. These measures will be secured through a Construction Worker Travel Plan (CWTP), likely appended to and managed alongside the detailed CTMP.

Construction Programme and Phasing

- 10.6.15 The overall construction programme is expected to last approximately 24 months. Peak traffic flows for each part of the Site will be assessed to determine the worst-case scenario for transport effects. As the construction programme and phasing strategy are further refined, it is anticipated that traffic flows will also be able to be optimised and, where possible practicable, reduced. Any updated information on construction sequencing will be incorporated into the ES as the design develops.

Decommissioning

- 10.6.16 The Scheme has a modelled operational lifespan of up to 60 years. At the end of this period, the Scheme will be decommissioned, with all above-ground infrastructure removed from the Site. The nature and scale of activities during decommissioning are expected to be broadly similar to those undertaken during the construction phase. As such, decommissioning impacts on traffic and transport are anticipated to be comparable to construction impacts, and a separate decommissioning assessment is not required. An oDEMP will be prepared and submitted as part of the DCO application.

Trip Generation – Operational Phase – General Maintenance

- 10.6.17 During the Operational Phase, there is only anticipated to be a limited number of maintenance visits per week. These visits will be distributed across the Site, with minimal overlap between areas. Maintenance activities will typically be undertaken using LGVs or four-wheel-drive vehicles for routine inspections and servicing of plant and equipment.

- 10.6.18 Occasional HGV access may be required for tasks such as ad-hoc replacement of solar panels or battery units. Permanent site access arrangements will be designed to accommodate HGVs safely, enabling vehicles to enter and leave in forward gear. Where HGVs are required during operation, routing will be planned to avoid sensitive receptors wherever practicable.
- 10.6.19 It is anticipated that operational maintenance traffic will not exceed the level associated with the Site's existing (predominantly agricultural) use. As such, traffic and access impacts during the operational phase are expected to be negligible or neutral, and therefore not significant.

Trip Generation – Operational Phase – Solar PV and Battery Replacement

- 10.6.20 It is anticipated that the solar PV panels may require replacement up to once, and the batteries up to four times, over the operational lifespan of the Scheme. The number of trips associated with panel and battery replacement will depend on the final detailed design.
- 10.6.21 Although the replacement programme is not yet defined, it is not expected to generate vehicle movements approaching those seen during construction. However, trip generation will be greater than for routine maintenance. Replacement activities are likely to be phased to minimise impacts on the local highway network. Similar management and mitigation measures to those set out within the oCTMP will be applied during these periods.
- 10.6.22 Given the characteristics of the Scheme, the greatest transport-related effects are expected to occur during the construction and decommissioning phases. These periods will therefore form the primary focus of the TA presented within the ES.
- 10.6.23 As part of the Scheme scoping process, an initial high-level review has been undertaken to identify indicative routing for vehicles accessing the Site from the SRN. As outlined previously, the A46 forms part of the SRN and bisects the Site and is therefore anticipated to serve as a primary access route.
- 10.6.24 It should be noted that these routes are indicative and subject to refinement as the design and assessment progress. They are included at this stage for illustrative purposes only. The indicative routing is shown in Volume II, Figure 10.2.

Predicted Effects

- 10.6.25 The main considerations and potential effects during the construction and decommissioning phases include:
- Increases in HGV movements;
 - The requirement for AILs;
 - Construction workforce travel to and from the Site;
 - Potential increases in delay for vehicles, pedestrians, cyclists and equestrians as a result of elevated HGV activity; and
 - Changes to route connectivity and amenity for pedestrians, cyclists and equestrians arising from construction and decommissioning activities.
- 10.6.26 During the operational phase, limited traffic will arise from routine maintenance and planned replacements of solar PV panels and battery components. Such replacements will be infrequent over the lifetime of the Scheme and would reuse existing infrastructure (e.g. mounting frames, and associated equipment), with only the components themselves being transported and installed.
- 10.6.27 Although a detailed replacement programme has not yet been defined, the scale, duration and intensity of traffic associated with these activities are expected to be considerably lower than during construction, with no requirement for the same level of heavy civis, abnormal loads or workforce presence. Consequently, the effects of operational-phase replacement activities are assessed as no worse than those identified for construction. The construction-phase mitigation and management measures (e.g. routing strategies, delivery time controls and workforce travel planning), where relevant, would be applied or adapted to replacement activities to ensure effects remain controlled.
- 10.6.28 On this basis, although replacement activities will occur during the operational phase, they are not expected to result in any likely significant transport effects. A separate assessment for this phase is therefore not considered required; instead, the construction phase assessment will be used to demonstrate that no significant effects would arise, and to identify any mitigation measures that would also apply to replacement activities.

10.7 Assumptions and Limitations

- 10.7.1 This exercise is based on the baseline information and Scheme design details available at the time of writing. At present, the full details relating to the location and methodology for construction, installation and decommissioning of the Scheme have not yet been confirmed. This includes the approach to construction activities and associated methods, such as the size and depth of any launch or reception pits associated with trenchless cable installation, and the methods to be used for watercourse crossings, all of which remain under development.
- 10.7.2 The exact extent of the traffic and transport Study Area also cannot yet be finalised. Detailed engagement with National Highways for the SRN and the respective local authorities for the LRN has not yet taken place. These discussions will be undertaken prior to the assessment. The Site lies within a rural context where access is likely to be constrained by the nature of the local highway network and the limited availability of public transport.
- 10.7.3 Construction traffic flows will be derived using best-estimate assumptions, applying a precautionary approach to avoid any underestimation of vehicle movements and to ensure that the assessment is robust.

10.8 Conclusions on Scoping

- 10.8.1 The transport and access aspects that will either be scoped in and taken forward for assessment in the ES, or scoped out from assessment in the ES are summarised in Table 10-3.

Table 10-3 Traffic and Access Topics Scoped In/Out

Topic	Scoped in/out	Description
Construction		
Construction Traffic Generation	In	Construction activity will generate the greatest number of vehicle movements. The ES will assess HGV, LGV and AIL trip generation, peak-period flows, arrival patterns, and associated impacts.
Construction Vehicle Routing	In	The ES will assess the suitability of proposed access routes, including effects on local settlements, sensitive receptors, and interaction with the LRN.

Topic	Scoped in/out	Description
Effects on the Local Road Network (LRN)	In	Construction traffic may affect highway capacity, delay, road safety and driver stress on local roads. These effects will be assessed using baseline ATC/MCC data and PIC data.
Impacts on Non-Motorised Users (NMUs)	In	Potential temporary effects on pedestrians, cyclists, equestrians, and vulnerable road users during construction will be assessed, including severance and road safety.
Impacts on PRow	In	The ES will assess temporary disruption, diversions, safety considerations and route reinstatement for PRow intersecting or adjoining the Site.
Operation		
Routine Operational Traffic and Access Effects	Out	Routine operation involves only low-frequency maintenance visits using light goods vehicles; traffic levels expected below agricultural baseline and ISEP thresholds.
Non-Routine Operational Maintenance	Out	Non-routine maintenance will be infrequent and temporary; managed through OEMP measures equivalent to construction mitigation.
Operational Replacement of Solar Panels and Battery Units	Out	Replacement of solar panels and battery units will generate fewer vehicle trips through construction. Similar measures to those outlined in the CTMP will be in place for the replacement phase.
Decommissioning		
Decommissioning	Out	It is assumed that the assessment of the Construction Phase would already present the worst-case in Transport and Access terms and capture all effects associated with the Decommissioning Phase. On that basis a separate assessment of the Decommissioning Phase is scoped out.

11 Noise and Vibration

11.1 Introduction

- 11.1.1 This chapter details the scope and methodology for the noise and vibration assessment of the Scheme. It will consider the likely significant effects of the Scheme on nearby noise and vibration sensitive receptors during construction, operation and decommissioning phases.
- 11.1.2 The scope of this chapter considers noise and vibration effects on human receptors. An assessment of noise and vibration impacts on ecological and heritage receptors is provided in Chapters 6 and 13 respectively.

11.2 Legislation, Policy and Guidance

- 11.2.1 The following Legislation relevant to the noise and vibration assessment is listed as follows:
- Control of Pollution Act (CoPA) (1974)²⁴⁵;
 - Environmental Protection Act (1990)³⁸;
- 11.2.2 The relevant policy is provided below:
- Overarching NPS for Energy (EN-1)¹³
 - NPS for Renewable Energy Infrastructure (EN-3)¹⁴
 - NPS for Electricity Networks Infrastructure (EN-5)¹⁵
 - NPPF (2025)¹⁸;
 - Noise Policy Statement for England (NPSE) (2010)²⁴⁶;
 - Planning Practice Guidance Noise (PPGN) (2025)²⁴⁷;
 - Stratford-on-Avon District Core Strategy 2011 to 2031 (2016)²⁵; and
 - South Worcestershire Development Plan (2016)²⁴;
 - Borough of Redditch Local Plan No.4 (2017)²³
- 11.2.3 The following guidance has been used to inform the scoping assessment for noise and vibration.

²⁴⁵ Control of Pollution Act 1974 - Part III Noise. Available at: <https://www.legislation.gov.uk/ukpga/1974/40/part/III>

²⁴⁶ Department for Environment, Food & Rural Affairs (2010) Noise Policy Statement for England. Available at: <https://www.gov.uk/government/publications/noise-policy-statement-for-england>

²⁴⁷ Ministry of Housing, Communities and Local Government, Ministry of Housing, Communities & Local Government (2018 to 2021) and Department for Levelling Up, Housing and Communities (2025) Noise: Planning Practice Guidance. Available at: <https://www.gov.uk/guidance/noise--2>

- BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1 (BS 5228-1) (2014)²⁴⁸;
- BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 2 (BS 5228-2) (2014)²⁴⁹;
- BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound (2019)²⁵⁰;
- BS 8233:2014 Guidance on sound insulation and noise reduction for buildings (2014)²⁵¹;
- Design Manual for Roads and Bridges (DMRB) LA111 - Noise and vibration – Revision 2 (2020)²⁵²; and
- Institute of Sustainability and Environmental Professionals (ISEP)²⁵³ Guidelines for Environmental Noise Impact Assessment (2014).

11.3 Baseline Conditions

11.3.1 At this stage of Scheme development, no baseline surveys have been undertaken. Baseline noise levels at locations representative of Noise Sensitive Receptors (NSRs) will be measured as part of the subsequent ES assessments. Monitoring locations will be agreed with key stakeholders including the relevant Local Authority Environmental Health teams and subject to land access arrangements.

Noise Sensitive Receptors

11.3.2 There are a number of NSRs located adjacent to the Site boundary. Many of these comprise isolated clusters of rural properties, however, areas where receptors are grouped in larger communities, such as towns and villages, include Dunnington, Wixford, Broom, Salford Priors, Cleeve Prior and South Littleton.

²⁴⁸ British Standards Institution (2014). BS 5228-1:2009+A1:2014 – Code of practice for noise and vibration control on construction and open sites – Part 1: Noise. London: BSI. Available at: <https://landingpage.bsigroup.com/LandingPage/Standard?UPI=000000000030258086>

²⁴⁹ British Standards Institution (2014). BS 5228-2:2009+A1:2014 – Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration. London: BSI.

²⁵⁰ British Standards Institution (2019). BS 4142:2014+A1:2019 - Methods for rating and assessing industrial and commercial sound. London: BSI. Available at: <https://landingpage.bsigroup.com/LandingPage/Standard?UPI=000000000030382132>

²⁵¹ British Standards Institution (2014). BS 8233:2014 - Guidance on sound insulation and noise reduction for buildings. London: BSI. Available at: <https://landingpage.bsigroup.com/LandingPage/Standard?UPI=000000000030241579>

²⁵² Highways England, (2020), Design Manual for Roads and Bridges – LA 111 – Noise and Vibration, Standards for Highways. Available at: <https://www.standardsforhighways.co.uk/search/cc8cfcf7-c235-4052-8d32-d5398796b364>

²⁵³ ISEP (2026). Guidelines for Environmental Noise Impact Assessment. Available at: <https://www.isepglobal.org/articles/environmental-noise-assessments>

- 11.3.3 An initial selection of NSRs has been undertaken as presented in Volume II, Figures 11.1 to 11.4 and Volume III, Appendix A11.1 using aerial mapping to identify appropriate assessment locations that will be representative of the most affected NSRs within the defined study areas below for details of the proposed study areas). Due to the high-level nature of this assessment, the currently identified NSRs listed in Volume III, Appendix A11.1 does not comprise an exhaustive list and may require further adjustment at a later stage, utilising the latest Ordnance Survey data, and through consultation with key stakeholders, including the relevant Host Authority Environmental Health Officers.

Description of Baseline Conditions

- 11.3.4 The Site comprises four individual Sites (Sites 1 to 4) and seven CRC located within the administrative areas of WyDC and SoADC, in addition to being under the jurisdiction of Worcestershire and WaCCs. Noise levels presented in this section are informed by Defra's Strategic Noise Maps for England – Round 4 (2024)²⁵⁴ presented in Volume II, Figures 11.1 to 11.4, and are expressed in dB $L_{Aeq,16hr}$ for daytime noise levels and dB L_{night} for nighttime noise levels.
- 11.3.5 The main noise sources affecting Site 1 are expected to be road traffic on the B4088, which runs along the eastern boundary, intermittent road traffic on other minor roads, and typical agricultural activity. Most NSRs within the surrounding study areas are anticipated to experience low baseline noise levels due to the rural setting and substantial distances from any major roads. According to Defra's Strategic Noise Maps, road traffic noise across much of the study areas, particularly to the west, is predicted to fall below the lower reporting threshold of 40 dB during the day and 35 dB at night. Mapping also indicates that NSRs located to the east of Site 1, closer to the B4088, may experience higher levels, typically up to 60–65 dB during the daytime and 50–55 dB at night. South of Abbots Morton, to the southwest of Site 1, receptors may also be influenced by noise from Morton Wood Farm Solar Farm and Bevington Substation.

²⁵⁴ Department for Environment, Food & Rural Affairs (2024). Strategic noise mapping (2022) Available at: <https://www.gov.uk/government/publications/strategic-noise-mapping-2022/explaining-the-2022-noise-maps>

- 11.3.6 The primary noise source influencing Site 2 and the surrounding study areas, located to the east of Site 1 and north of Salford Priors, is road traffic on the A46, which runs north–south through the Site. According to Defra's Round 4 Strategic Noise Maps, NSRs closest to the A46 are expected to experience elevated baseline noise levels, typically in the region of 70–75 dB during the daytime and 60–65 dB at night. NSRs situated further from the A46 are expected to experience lower baseline sound levels consistent with the rural setting. However, these receptors may still be exposed to intermittent noise from minor local roads and agricultural activities. Defra's mapping indicates that noise levels at the majority of receptors away from the main road are generally within the range of 40–45 dB during the daytime and 35–40 dB at night. In addition to road traffic influences, NSRs to the south, within Salford Priors, may also be subject to noise contributions from Spearhead Machinery Works and the adjacent industrial estate. Meanwhile, NSRs to the west, near Iron Cross and Hilters Halt, may experience periodic noise associated with the kennels at Evesham Lodge.
- 11.3.7 Site 3, located southeast of Site 2 and extending from Cleeve Prior southwards to Ullington and east to Dorsington, is generally characterised by low baseline noise levels, with Defra's Strategic Noise Maps indicating typical daytime levels below 40 dB and nighttime levels below 35 dB, reflecting its rural setting and distance from major noise sources. Within this Site and the surrounding study areas, the main contributors to noise include activities from the Gilford Gliding Club situated between sub-Site 3(b) and 3(c), intermittent agricultural operations, and traffic on the B4085 to the north and Honeybourne Lane which runs through the centre of the Site. Noise sensitive receptors located nearer to these roads are expected to experience elevated baseline levels, typically around 55–60 dB during the daytime and 40–45 dB at night, compared with the quieter conditions prevailing across the majority of the Site.
- 11.3.8 For NSRs within the study areas of Site 4, baseline noise levels are primarily influenced by road traffic on the B4085, which runs to the west of the Site through South Littleton. NSRs located closest to this road are typically expected to experience daytime noise levels in the region of 40–45 dB, reducing to below 35 dB at night. Although the Cotswold Railway Line runs along the southern boundary of the Site, the nearest NSRs are within approximately 550m of the track, and as such, railway noise is not anticipated to influence baseline sound levels at these receptors.
- 11.3.9 CRs 1 to 7 extend from Noah's Green, approximately 7km north of Site 1, southward, connecting Sites 1 through 4 along with their respective sub-sites.

- 11.3.10 CRC1 spans from the existing National Grid substation east of Feckenham to sub-Site 1(c) at Abbots Morton; the primary noise sources in this region are agricultural activities, including farming operations, and road traffic associated with the A422, B4092, and B4090. Receptors located within Inkberrow may also be affected by noise from the Inkberrow Football Club, during sporting events.
- 11.3.11 CRC2 connects sub-Site 1(d) to 2(c), where the predominant noise source is vehicular traffic from the A4088, which passes directly between the sub-Sites. Additionally, Mudwalls Farm, situated between these locations, likely contributes to the local noise environment.
- 11.3.12 CRC3 links sub-Sites 2(e) with 3(a) and 3(b), crossing the A46 and B439; consequently, road traffic is the dominant noise source in this area, and minor noise contributions from agricultural sources is likely at receptors in the area.
- 11.3.13 CRC4 runs between sub-Sites 3(a) and 3(b), with road traffic from the B4085 serving as the dominant noise source in the area.
- 11.3.14 CRC5 connects sub-Sites 3(b) and 3(c), and receptors here are expected to experience noise from the Bidford Gliding Club and Honeybourne Road.
- 11.3.15 CRC6 joins sub-Sites 3(d) and 3(e), where ambient noise levels are anticipated to be low due to the area's rural nature; however, minor contributions from distant road traffic on Honeybourne Lane and agricultural activities, including Bickmarsh Hall Farm west of sub-Site 3(e), are expected.
- 11.3.16 CRC7 links Site 3 and 4, extending north of Ullington down to South Littleton, with noise sources primarily comprising road traffic from Buckle Street, which extends south to Honeybourne and Shinehill Lane, which is located north of Site 4.

11.4 Assessment Methodology

Identified Noise Sources

- 11.4.1 The Scheme will feature a range of continuous, 24 hour noise generating sources. Although PV panels themselves do not generate noise during normal operation, with the exception of occasional low-level mechanical noise from tracker motors where such systems are used, a number of supporting infrastructure elements will contribute to the operational noise emissions.

11.4.2 Construction works, although generally anticipated to be restricted to daytime hours, are likely to involve several noise generating activities typical of major infrastructure installation. Works may include:

- Use of mechanical plant such as excavators, tracked dozers, telehandlers, cranes, concreting plant and piling rigs for equipment bases, and trenching equipment for cable installation.
- Temporary construction compounds, welfare cabins, generators and storage areas that may also contribute intermittent noise during the working day.
- Construction traffic will include deliveries of Solar Panels, Mounting Structures, Conversion Units, BESS Enclosures and other materials via HGVs. These movements have the potential to cause perceptible noise increases, particularly where access routes pass close to residential properties or sensitive community receptors.
- Trenchless cable installation, including Horizontal Directional Drilling (HDD) machinery, which may occur outside of core hours due to the nature of the activity requiring continuous drilling over the working period of any given drill.

11.4.3 Operational noise sources are expected to include:

- Conversion Units distributed throughout each PV field, which can produce tonal hum, fan noise and low frequency components, particularly during periods of high electrical load;
- Sub-distribution Switch Rooms and Substations, housing electrical equipment including main transformers, that operate continuously and may generate tonal or broadband noise, especially under peak generation or cooling cycles; and
- BESS components, including inverter units, cooling fans and switchgear, which typically operate both day and night to manage charging, discharging and thermal regulation of the battery units.

Construction Study Area

11.4.4 A study area extending 300m from the Site boundary will be applied for the assessment of construction noise and vibration. This approach is consistent with comparable projects and aligns with BS 5228-1:2009+A1:2014³⁰⁵, which states that “*at distances over 300 m noise predictions are to be treated with caution*”. Construction vibration effects typically diminish within approximately 100m, therefore, the study area for construction vibration is limited to this distance from the Site boundary.

- 11.4.5 The construction study areas of 300m and 100m will be also applied for the assessment of decommissioning noise and vibration respectively.
- 11.4.6 The construction traffic noise study area for assessment will be defined in accordance with DMRB LA111³⁰⁹ which specifies that receptors within 50m of the carriageway edge of the affected road network should be included.

Operational Study Area

- 11.4.7 As operational noise study areas are not prescribed within current technical guidance, the extent of the assessment will be defined using the Applicant's experience of comparable schemes. Given the anticipated noise emissions from the Conversion Units, Sub-distribution Switch Rooms, Substations, and BESS infrastructure, a study area extending 500m from the Site boundary is considered sufficient to identify representative NSRs with the potential to experience significant effects.

Consultation

- 11.4.8 Consultation will be undertaken with the Environmental Health Officer for each relevant host authority to agree on the proposed methodology, identification of NSRs and baseline monitoring locations.

Baseline Surveys

- 11.4.9 Baseline noise monitoring will be undertaken at locations representative of NSRs. Subject to land access, it is proposed that long-term unattended monitoring would be undertaken for a period of up to one week at each monitoring location, to be accompanied by weather data from a representative weather station. Alternative attended sample noise monitoring may be required depending on site access availability.

Assessment of Construction Noise and Vibration

- 11.4.10 Construction noise predictions (and vibration, where required) will be undertaken using the empirical calculation methods set out in BS 5228.
- 11.4.11 The assessment of construction noise and vibration will follow the procedures and guidance set out in BS 5228, supplemented by DMRB LA111 for determining impact magnitudes and effect significance. This approach ensures a consistent and robust assessment that considers both the overall level of construction noise relative to existing ambient conditions and the duration of the works.

- 11.4.12 Construction noise LOAEL and SOAEL values, as provided in DMRB LA111, are presented below in Table 11-1.

Table 11-1 - Construction noise LOAEL and SOAEL values

Time period	LOAEL	SOAEL
Day 07:00-19:00 weekdays & 07:00-13:00 Saturdays	Baseline noise levels dB $L_{Aeq,T}$	Threshold level determined as per BS 5228-1 Section E3.2 and Table E.1 BS 5228-1
Night 23:00-07:00	Baseline noise levels dB $L_{Aeq,T}$	Threshold level determined as per BS 5228-1 Section E3.2 and Table E.1 BS 5228-1
Evening and Weekends All time periods not covered above	Baseline noise levels dB $L_{Aeq,T}$	Threshold level determined as per BS 5228-1 Section E3.2 and Table E.1 BS 5228-1

- 11.4.13 The construction noise LOAEL will be determined using baseline noise levels. The LOAEL represents the lowest noise level at which the detectable onset of an adverse effect can occur. The SOAEL represents the noise level which, if exceeded, has the potential to result in a significant effect, depending on duration and context.
- 11.4.14 Construction noise SOAEL values are determined using the “ABC” methodology outlined in BS 5228-1 (Section E3.2). Using the ABC method, SOAEL threshold values are determined using the measured baseline noise levels, categorised for daytime, evening, and night-time periods. A potential significant effect is indicated if the noise level in dB $L_{Aeq,T}$ arising from the works exceeds the threshold level for the Category appropriate to the ambient noise level.

Table 11-2 - The ABC method – BS 5228-1²⁵⁵

Assessment Category and threshold value period	Threshold value, in decibels (dB) ($L_{Aeq,T}$)		
	Category A ^{A)}	Category B ^{B)}	Category C ^{C)}
Night-time (23:00-07:00)	45	50	55
Evening and weekends ^{D)}	55	60	65
Daytime (07:00 – 19:00) and Saturdays (07:00-13:00)	65	70	75

²⁵⁵ British Standards Institute (2026) BS 5228-1:2009+A1:2014

Code of practice for noise and vibration control on construction and open sites. Noise: Table E.1, BS 5228-1. Available at:

<https://landingpage.bsigroup.com/LandingPage/Standard?UPI=000000000030258086>

Assessment Category and threshold value period	Threshold value, in decibels (dB) ($L_{Aeq,T}$)		
	Category A ^{A)}	Category B ^{B)}	Category C ^{C)}
Note 1: A potential significant effect is indicated if the $L_{Aeq,T}$ noise level arising from the site exceeds the threshold level for the Category appropriate to the ambient noise level. Note 2: If the ambient noise level exceeds the Category C threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a potential significant effect is indicated if the total $L_{Aeq,T}$ noise level for the period increases by more than 3 dB due to site noise. Note 3: Applied to residential receptors only.			
A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values. B) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as Category A values. C) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than Category A values. D) 19:00-23:00 weekdays, 13:00-23:00 Saturdays and 07:00-23:00 Sundays.			

- 11.4.15 Construction road traffic noise will be predicted in accordance with the Changes in the Basic Noise Level (BNL), as defined by Calculation of Road Traffic Noise (CRTN)²⁵⁶. This will be calculated based on the anticipated increases in traffic on the local road network and assessed using the criteria set out in DMRB LA111.
- 11.4.16 Where low traffic flows are identified (as defined in CRTN), alternative prediction and assessment methods may be applied with reference to BS 5228.
- 11.4.17 The magnitude of impact from construction noise will be determined as shown in Table 11.3

Table 11-3 - Magnitude of impact from construction noise

Magnitude of impact	Construction noise level (dB $L_{Aeq,T}$)	Change in construction traffic noise level (dB $LA_{10,18h}$)
Major	Greater than or equal to the SOAEL +5 dB	Greater than or equal to 5 dB
Moderate	Greater than or equal to the SOAEL and below the SOAEL +5 dB	Greater than or equal to 3 dB and less than 5 dB

²⁵⁶ Department of Transport Welsh Office (1988). Calculation of Road Traffic Noise (CRTN). Available at: <https://trid.trb.org/view/291939>

Magnitude of impact	Construction noise level (dB LAeq,T)	Change in construction traffic noise level (dB LA10,18h)
Minor	Greater than or equal to the LOAEL and below the SOAEL dB	Greater than or equal to 1 dB and less than 3 dB
Negligible	Below the LOAEL	Less than 1 dB

11.4.18 Construction vibration LOAEL and SOAEL values, as provided in DMRB LA111, are presented below in Table 11-4.

Table 11-4 - Construction vibration LOAELs and SOAEL values

Threshold level	Vibration level (Peak Particle Velocity (PPV))	Effect
LOAEL	0.3 mm/s	Vibration might be just perceptible in residential environments.
SOAEL	1.0 mm/s	It is likely that vibration of this level in residential environments will cause complaint but can be tolerated.

11.4.19 The associated criteria representing the magnitude of impact for construction vibration are shown in Table 11-5.

Table 11-5 - Magnitude of impact of vibration levels

Magnitude of impact	Vibration Level
Major	Above or equal to 10 mm/s PPV
Moderate	Above or equal to SOAEL and below 10 mm/s PPV
Minor	Above or equal to LOAEL and below SOAEL
Negligible	Below LOAEL

11.4.20 Construction noise, vibration and construction traffic noise shall constitute a significant effect where it is determined that a major or moderate magnitude of impact will occur for a duration exceeding:

- 10 or more days or nights in any 15 consecutive days or nights; or
- a total number of days exceeding 40 in any 6 consecutive months.

11.4.21 The criteria above are generally relevant for effects on human receptors in residential environments. Alternative assessment methods may be proposed for any non-residential receptors on a case-by-case basis.

- 11.4.22 DMRB LA111 notes that human perception of vibration occurs at levels far lower than those associated with potential structural damage. The standard does not define damage thresholds itself but instead directs users to BS 5228 for further guidance, which notes the probability of damage tends towards zero at 12.5mm/s PPV.

Assessment of Operational Noise

- 11.4.23 Operational noise predictions will be undertaken using Sound PLAN noise modelling software, which applies the BS ISO 9613-2:2024²⁵⁷ sound propagation methodology. This standard provides a recognised approach for calculating sound attenuation over distance, accounting for factors such as ground absorption, atmospheric conditions, screening, reflections, and barrier effects. The model will use manufacturer sound power data, or measured data obtained by the Applicant where available, to ensure a robust and representative assessment of operational noise emissions from all key plant items.
- 11.4.24 The assessment of operational noise will take into account the baseline conditions and be undertaken with reference to guidance in BS 4142 and BS 8233.
- 11.4.25 BS 4142 states the following regarding the assessment of impacts, comparing the rating level of the Scheme with the existing background level:
- "a. Typically, the greater this difference, the greater the magnitude of the impact.*
 - b. A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.*
 - c. A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.*
 - d. The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context."*

²⁵⁷ BSI (2024). BS ISO 9613 2:2024 Acoustics – Attenuation of sound during propagation outdoors – Part 2: Engineering method for the prediction of sound pressure levels outdoors. British Standards Institution. Available at: <https://www.iso.org/standard/74047.html>

11.4.26 Table 11-6 presents this BS 4142 criteria in terms of magnitude of impact.

Table 11-6 - Magnitude of impact from operational noise

Magnitude of impact	Operational Noise Criteria
Major	Rating level $L_{Ar,Tr}$ >10 dB above background sound level ($L_{A90,T}$)
Moderate	Rating level $L_{Ar,Tr}$ 5-10 dB above background sound level ($L_{A90,T}$)
Minor	Rating level $L_{Ar,Tr}$ 0-5 dB above background sound level ($L_{A90,T}$)
Negligible	Rating level $L_{Ar,Tr}$ below background sound level ($L_{A90,T}$)

11.4.27 In determining the significance of effect, both the sensitivity of the receptor and the absolute level of noise relative to appropriate LOAEL and SOAEL thresholds will also be taken into account.

11.4.28 BS 4142 advises that, where rating levels and background levels are low, which is likely to be the case in rural areas, the assessment of operational noise should take into context the absolute noise level. The ANC Guide to BS 4142²⁵⁸ provides context to this by stating:

“BS 4142 does not define ‘low’ in the context of background sound levels nor rating levels. The note to the Scope of the 1997 version of BS 4142 defined very low background sound levels as being less than about 30dB L_{A90} , and low rating levels as being less than about 35dB $L_{Ar,Tr}$ ”.

11.4.29 The ANC Guide further suggests that:

“...similar values would not be unreasonable in the context of BS 4142, but that the assessor should make a judgement and justify it where appropriate”.

11.4.30 Based on the above a minimum rating level of 35 dB $L_{Ar,Tr}$ for the LOAEL would align with guidance in PPGN, which defines noise below the LOAEL as follows:

“Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life”.

²⁵⁸ Association of Noise Consultants (ANC) (2020). ANC Guide to BS 4142: Methods for rating and assessing industrial and commercial sound. Association of Noise Consultants, UK. Available at: <https://www.association-of-noise-consultants.co.uk/wp-content/uploads/2020/05/ANC-BS-4142-Guide-March-2020.pdf>

- 11.4.31 BS 8233 provides guidance levels for internal noise within dwellings of 30 dB $L_{Aeq,T}$ for good sleeping conditions at night, and 35 dB $L_{Aeq,T}$ for living rooms and good rest conditions during the daytime. In accordance with examples in Annex A of BS 4142, it is assumed that building envelope attenuation would be reduced to approximately 10 dB by a partially open window. Consequently, an external SOAEL of 45 dB $L_{A,T,r}$ and 40 dB $L_{A,T,r}$ is proposed for the night-time and daytime periods, respectively.
- 11.4.32 Operational noise shall constitute a significant effect where it is determined that a major or moderate magnitude of impact will occur and where absolute noise levels are above SOAEL.
- 11.4.33 The criteria above are generally relevant for residential receptors. Alternative assessment methods may be proposed for sensitive non-residential receptors on a case-by-case basis. The criteria for determining receptor sensitivity will be broadly based on the criteria set out in Section 2.3 to enable consistency across the different assessment topics. The criteria will be adjusted to align with the relevant guidelines set out in Section 11.2 and presented in the ES.

11.5 Embedded Mitigation

Construction Noise Mitigation

- 11.5.1 Construction traffic is expected to utilise the strategic road network wherever practicable, resulting in a minimal increase in vehicle flows on many major roads in the locality, including the A46 which runs across the study area. An oCTMP will be prepared, incorporating measures to minimise disturbance from road traffic noise. These are likely to include careful route selection to avoid sensitive areas where practicable, restrictions on delivery times, appropriate speed limits, and measures to repair any road surface damage on the local road network attributable to construction traffic, where necessary.
- 11.5.2 Best Practicable Means (BPM), as defined under Section 72 of CoPA, will be applied throughout the construction phase to minimise noise and vibration as far as reasonably practicable. Embedded mitigation measures for construction activities will be set out in the oCEMP and mitigation measures for the decommissioning stage will be set out in the oDEMP.

Operational Noise Mitigation

- 11.5.3 At this stage, no specific operational noise mitigation has been incorporated into the design. However, the selection of low noise equipment will be prioritised where practicable, and the layout of noise generating infrastructure will be optimised to mitigate effects at nearby receptors as the design progresses. Where necessary, additional operational mitigation (such as acoustic enclosures, attenuators, or screening) will be identified and described within the oOEMP and the ES.

Decommissioning Noise Mitigation

- 11.5.4 Upon decommissioning of the Scheme, it is likely that the impacts will be similar to those experienced during the construction phase. Therefore, the same or similar mitigation measures should be implemented during the decommissioning phase. Exact mitigation measures for the decommissioning stage will be set out in the oDEMP.

11.6 Likely Significant Effects

- 11.6.1 Potential significant effects from construction noise may arise during activities such as site preparation, piling, plant installation, substation construction, cable installation (both trenching and trenchless techniques), and construction related vehicle movements both within the Site and along public road access routes. Works associated with the establishment and operation of construction compounds may also give rise to potential significant effects.
- 11.6.2 The need for vibratory construction activities (e.g. ground compaction or percussive piling) has not yet been confirmed. However, where such activities occur close to NSRs, typically within around 100 m, there is the potential for significant construction vibration effects.
- 11.6.3 Potential significant effects from operational noise may occur due to emissions from key Scheme equipment, including Conversion Units, Sub-distribution Switch Rooms, Substations, Solar Panel tracking motors (if used) and BESS Equipment. As some equipment may operate continuously, 24 hours per day, noise during the more sensitive night-time period is likely to represent the greatest potential for significant effects.
- 11.6.4 The nature of the proposed operational equipment is such that it is not expected to generate perceptible levels of ground borne vibration at NSRs, and therefore operational vibration is scoped out.

- 11.6.5 Operational traffic is scoped out as it is limited primarily to occasional maintenance visits and replacement of panels, which will be low in volume and not at a scale likely to give rise to significant noise effects at NSRs along the main access routes. Traffic associated with periodic replacement activities, while higher than routine maintenance, will be no greater than construction-phase traffic.
- 11.6.6 The impact of construction, operational, and decommissioning vibration from road traffic is scoped out in accordance with DMRB LA111, which states that: *operational vibration is scoped out of the assessment methodology as a maintained road surface will be free of irregularities as part of project design and under general maintenance. So operational vibration will not have the potential to lead to significant effects.* It is assumed that similar levels of road surface quality and regular maintenance will also be applicable to construction traffic, so that construction traffic vibration will also not have the potential to lead to significant adverse effects and is therefore also scoped out of further assessment.

11.7 Assumptions and Limitations

- 11.7.1 It is assumed that noise and vibration effects during the decommissioning phase are expected to be similar to, or lower than, those experienced during construction. The construction noise assessment will therefore be considered representative of the decommissioning phase.
- 11.7.2 At this stage of the assessment, detailed information on plant specification, the exact location of noise generating equipment, construction traffic volumes, haul routes, and construction compound locations have not yet been confirmed. As a result, the evaluation of potential significant effects is based on professional judgement supported by experience from comparable developments.

11.8 Conclusions on Scoping

- 11.8.1 The noise and vibration aspects that will either be scoped in and taken forward for assessment in the ES, or scoped out and will therefore not be taken forward for assessment in the ES, are summarised in Table 11-7.

Table 11-7 - Noise and Vibration Topics Scoped In/Out

Topic	Scoped in/out	Description
Construction		
Noise and Vibration from construction works	In	Temporary noise and vibration emissions from construction works may adversely impact on sensitive receptors.
Traffic Noise	In	Construction traffic, particularly where access routes pass close to homes or community receptors has the potential to cause noticeable noise increases and may adversely affect receptors near public roads that are part of construction traffic routes.
Traffic Vibration	Out	Road traffic vibration is scoped out as per guidance in DMRB LA111, as road surfaces will be free of irregularities under general maintenance, so that vibration will not have the potential to lead to significant adverse effects.
Operational		
Noise from Scheme Infrastructure	In	Permanent noise emissions from Scheme infrastructure may adversely affect nearby sensitive receptors.
Traffic Noise	Out	Operational traffic, limited primarily to occasional maintenance visits and periods of replacement of panels and batteries, will be low in volume and not at a scale likely to give rise to significant noise effects at NSRs along the main access routes. Traffic associated with periodic replacement activities has also been considered and, while higher than routine maintenance, will not exceed construction-phase traffic.
Traffic Vibration	Out	Road traffic vibration is scoped out as per guidance in DMRB LA111, as road surfaces will be free of irregularities under general maintenance, so that vibration will not have the potential to lead to significant adverse effects.
Operational Equipment Vibration	Out	The nature of the proposed operational equipment is such that it is not expected to generate perceptible levels of ground borne vibration at NSRs.

Topic	Scoped in/out	Description
Decommissioning		
Noise and Vibration	In	Temporary noise and vibration emissions from decommissioning works may adversely impact on sensitive receptors.

12 Landscape and Visual

12.1 Introduction

- 12.1.1 This chapter sets out the proposed approach and methodology for undertaking an assessment of the likely significant landscape and visual effects of the Scheme during the construction, operation and decommissioning phases, including the Landscape and Visual Impact Assessment (LVIA) methodology.
- 12.1.2 The LVIA will be undertaken in accordance with the Guidelines for Landscape and Visual Impact Assessment, Third Edition, 2013 (GLVIA3)²⁵⁹ and with reference to other environmental topics, including Chapter 6: Ecology and Biodiversity, Chapter 13: Historic Environment, and Chapter 15: Glint and Glare.
- 12.1.3 The GLVIA3 sets out that landscape and visual receptors should be considered separately:
- Assessment of landscape effects: Assessing effects on the landscape as a resource in its own right. 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.
 - Assessment of visual effects: Assessing effects on specific views and on the general visual amenity experienced by people. Visual effects relate to changes to existing views of identified visual receptors (i.e. people), from the loss or addition of features within their view due to the Scheme.
- 12.1.4 This chapter is supported by the following Figures contained in Volume II:
- Figure 12.1 Location Overview;
 - Figure 12.2 Designations of Relevance to Landscape – Focus Areas;
 - Figure 12.3 Landscape Character Areas;
 - Figure 12.4 Indicative Representative Viewpoints – Focus Areas; and
 - Figure 12.5 Landscape and Visual Receptors Overview.

Study Area

- 12.1.5 In accordance with GLVIA3, the purpose of the landscape study area is to identify the area which the Scheme may affect in a significant manner.

²⁵⁹ Landscape Institute (2013) Guidelines for Landscape and Visual Impact Assessment (GLVIA3). Available at: <https://landscapeinstitute.org/policy-practice/technical/assessments-standards/glvia3-panel/>

- 12.1.6 GLVIA3 sets out that at the scoping stage the study area will be defined in a preliminary way, and this is likely to be modified as more detailed analysis is undertaken, in combination with discussions with the LPAs.
- 12.1.7 From the desk-based review and initial winter fieldwork undertaken for the Scheme in December 2025, the visibility of the land within the Site's boundary varies. This is due to the undulating landform, woodland areas, field boundaries and roadside vegetation across the surrounding landscape.
- 12.1.8 In line with GLVIA3, which requires a proportionate approach, a preliminary study area of 3 km from the Site boundary has been chosen. It is considered that beyond this distance, even with good visibility, the Scheme is unlikely to give rise to significant effects. However, the Cotswolds National Landscape, although over 4.5 km from the closest part of the Site, does have clear visual interconnectivity and, given its National status, views and effects on setting will be considered from key viewpoints such as Meon Hill, Ebrington Hill and Bredon Hill.
- 12.1.9 In the case of the CRC, the study area will be restricted to 500 m from its boundary, as effects over this distance arising from the installation of underground cables, which will be limited to the construction period, are highly unlikely to be significant.
- 12.1.10 This initial study area will be refined where necessary, subject to agreement with the LPA landscape officers and during more intensive Site visits. Justification for its final extent will be set out in the ES.

12.2 Legislation, Policy and Guidance

- 12.2.1 There is no legislation considered to be of specific relevance to the landscape and visual assessment.
- 12.2.2 The following policy has been taken into account for the landscape and visual scoping assessment.:
- Overarching NPS for Energy (EN-1)¹³
 - NPS for Renewable Energy Infrastructure (EN-3)¹⁴
 - NPS for Electricity Networks Infrastructure (EN-5)¹⁵
 - NPPF (2025)¹⁸
 - SoADC Core Strategy 2011–2031²⁵
 - SWLP Preferred Options 2025 (emerging policy)²⁶
 - SoADC Development Requirements SPD (2019-2024)⁸³
 - SWDP 2016²⁴
 - ReBC Local Plan No4 (Jan 2017)²³

- Cotswolds National Landscape Management Plan (2025-2030)²⁶⁰

12.2.3 The Scoping assessment has been undertaken in accordance with the following guidance:

- Guidelines for Landscape and Visual Impact Assessment 2013²⁵⁹
- Landscape Institute Technical Guidance Notes (LITGN)²⁵⁹
- SoADC Special Landscape Areas Study (2012)²⁶¹
- Renewable Energy Landscape Sensitivity Study for SoADC (July 2014)²⁶²
- WoCC Landscape Character Assessment Supplementary Planning Guidance (SPG)²⁶³ 2012
- Warwickshire Landscape Assessment Guidelines²⁶⁴
- LITGN 06/2019: Visual Representation of Development Proposals²⁶⁵, noting this is currently under review;
- LITGN 02/21: Assessing landscape Value outside national designations²⁶⁶
- LITGN 02/19: Residential Visual Amenity Assessment (RVAA)²⁶⁷,
- Stratford-on-Avon District Design Guide²⁶⁸
- National Planning Policy Guidance (PPG)¹⁹

²⁶⁰ Cotswolds National Landscape (2020) Cotswolds National Landscape Management Plan 2025-2030. available at: https://www.cotswolds-nl.org.uk/wp/wp-content/uploads/2025/11/CNL-MANAGEMENT-PLAN_2025-30-FINAL.pdf

²⁶¹ Stratford-on-Avon District Council (2012) Special Landscape Areas Study. Available at: <https://www.stratford.gov.uk/doc/205823/name/ED4112%20Special%20Landscape%20Areas%20Study%20June%202012.pdf>

²⁶² Stratford-on-Avon District Council (2014) Renewable Energy Landscape Sensitivity Study. Available at:

<https://www.stratford.gov.uk/doc/205819/name/ED4114%20Renewable%20Energy%20Landscape%20Sensitivity%20Study%20July%202014.pdf>

²⁶³ Worcestershire County Council (2012) Landscape Character Assessment Supplementary Guidance. Available at: https://www.worcestershire.gov.uk/sites/default/files/2023-02/landscape_character_assessment_supplementary_guidance.pdf

²⁶⁴ Warwickshire Council (1993) Warwickshire Landscape Assessment Guidelines. Available at: <https://www.warwickshire.gov.uk/landscapeguidelines>

²⁶⁵ Landscape Institute (2025) Visualisation of development. Available at: <https://landscapeinstitute.org/policy-practice/technical/digital-practice-mapping-visualisation/visualisation/>

²⁶⁶ Landscape Institute (2021) TGN 02-21: Assessing landscape value outside national designations. Available at: <https://landscapeinstitute.org/publication/tgn-02-21-assessing-landscape-value-outside-national-designations/>

²⁶⁷ Landscape Institute (2028) Residential Visual Amenity Assessment. Available at: <https://landscapeinstitute.org/technical-resource/rvaa/>

²⁶⁸ Stratford-on-Avon District Council (2001) District Design Guide. Available at: <https://www.stratford.gov.uk/doc/175264/name/District%20Design%20Guide.pdf>

12.3 Baseline Environment

Landscape Baseline

Overall Landscape Context

- 12.3.1 A desktop study and Site walkover have informed the characterisation of the local landscape character. This has included consideration of published Landscape Character Assessments (LCAs) (listed in the previous section), analysis of the site contours, designated landscapes and identification of landscape features.
- 12.3.2 Further desk studies and site investigations will be undertaken to help further characterise the different areas of the Site and local landscape character areas will be defined and assessed as part of the LVIA.

Topography and Landscape Features

- 12.3.3 The overall landscape is undulating with a rolling landform and localised high points. The River Avon Valley cuts across the Site between Bidford and Salford Priors.
- 12.3.4 There is an extensive network of PRow routes across the study area often connecting the settlements by cutting across or along intervening fields.
- 12.3.5 The main roads through and around the Site include the A46 heading north-south through Site 2; this road is a dual carriageway and is set within a cutting with dense roadside vegetation. The A22 heads west from the A46 passing north of Site 1 and over CRC1. The remaining minor roads and lanes across the study area are generally well vegetated, either by hedgerows, scrub or individual trees, but the undulating nature of the landscape often allows views out.

Site 1

- 12.3.6 This sub-site extends over a highly undulating landscape, rising to 124 m Above Ordnance Datum (AOD) just north of Weethley (sub-Site 1(e)) and undulating down to 60 m AOD at Lower Barn Farm (sub-Site 1(b)).
- 12.3.7 The B4088 forms a ridge east of sub-Site 1(e) and the land falls dramatically away into the Ragley Registered Park and Garden with intervisibility between each side very restricted.
- 12.3.8 Weethley Wood, along the western edge of sub-Site 1(e), also restricts views.

- 12.3.9 Abbots Morton, Goom's Hill, Slade Wood, Rough Hill and Cock Bevington rise 10-15 m above the lowest parts of this area and thus form barriers to intervisibility with the landscape beyond.
- 12.3.10 There is a distinctive ridgeline crossing sub-Site 1(c) between Poole Wood and Commissioners Wood, made all the more distinctive by the double line of pylons that parade across it.
- 12.3.11 An existing solar farm is bordered by sub-Site 1(a) and sits very well within the landscape, its presence only obvious when immediately adjacent to it.
- 12.3.12 The land use is dominated by agriculture, mainly arable with some pastoral. Medium to large scale agricultural fields tend to be bordered by well-maintained hedgerows with occasional specimen trees.
- 12.3.13 There are large areas of woodland and the more formalised deer park landscape of two Registered Parks and Gardens (RPGs) – Ragley Hall and Rous Lench.
- 12.3.14 Site 1 is bordered by Weethley, Weethley Gate, Wood Bevington, Cock Bevington and Morton Wood (all small clusters of properties associated with manor houses or farms). The larger villages of Abbots Morton, Church Lench and Dunnington lie slightly further out (600 m to 1.2 km) but have some intervisibility.

Site 2

- 12.3.15 This landscape is also undulating, from 80m AOD at sub-Site 2(a) west of Ennister Wood down to 30m AOD within sub-Site 2(e).
- 12.3.16 Site 2 is closer to Dunnington and also borders Broom, Wixford and Salford Priors; the larger town of Bidford-on-Avon is just over 1.5 km to the east.
- 12.3.17 Marriage Hill at Bidford-on-Avon and the road between Iron Cross and Salford Priors generally form ridgelines restricting intervisibility south. Wixford and Broom sit within a flatter area, well screened by vegetation but there are views from higher ground to the west towards the higher ground to the east at Exhall.
- 12.3.18 The A46 crosses north-south and its planting and earthworks limit intervisibility between the adjacent sub-Sites here but there are longer distance views east-west.
- 12.3.19 The River Arrow comes into the Site north of Wixford and runs adjacent to sub-Sites 2(b) and 2(e) heading south to merge into the River Avon at Salford Priors.

- 12.3.20 This area also contains blocks of woodland, most notable at Ragley Ladies Wood and there are several orchards at Dunnington.
- 12.3.21 Sub-Site 2(d) contains several large ponds which are thought to be associated with the historical quarry activity in this area and are currently used as fishing ponds.

Site 3

- 12.3.22 The central area of Site 3 is generally flat at around 50-40 m AOD where it crosses the Roman Road of Buckle Street. Land at Staple Hill, Barton Hill, Ralphs Wood, Pebworth Downs, Pebworth, Ullington, Hoden and Green Hill then form a bowl around this area containing views within.
- 12.3.23 Sub-Sites 3(a), 3(b) and 3(e-g) sit within or on this higher ground.
- 12.3.24 The land use is also dominated by arable use with larger scale field compared to the other sub-Site areas.
- 12.3.25 Site 3 borders the village of Cleeve Prior and sweeps around Bickmarsh. Dorsington village lies 1 km to the east, with Pebworth and the scattered properties of Ullington to the south.
- 12.3.26 The Dorsington section of the Heart of England Forest lies on the eastern extents of the Site with several newly planted woodland connecting up the more established woods in this area.

Site 4

- 12.3.27 This site sits in a much flatter landscape with views south and east curtailed by the flatness and intervening vegetation. Bennetts Hill forms a visual border to the west, with the north contained by the landscape between North Littleton and Ullington.
- 12.3.28 Site 4 borders the village of South Littleton, with Bretforton further to the south and the Great Western Railway runs just over 500 m to the south of Site 4 from Honeybourne to Evesham

CRC 1

- 12.3.29 CRC1 heads north from Site 1 past Abbots Morton, generally following existing above ground pylons, past isolated farms east of Inkberrow and west of Priory Piece Farm, between Morton Hall and Holberrow Green and into the substation east of Feckenham.

CRC 2

- 12.3.30 CRC2 connects Sites 1 and Site 2 and passes through primarily agricultural fields. It is bordered to the east by Tothall Lane and to the north by properties associated with the village of Dunnington.

CRC 3

- 12.3.31 CRC3 connects Sites 2 and 3. From the north it crosses Salford Road before splitting into two routes to avoid the village of Marcliff. The western route crosses the River Avon before connecting to Site 3 at east of Cleeve Prior. The eastern route also crosses the River Avon before running southeast, connecting to Site 3 west of Bickmarsh. The entire route cuts through isolated farmland.

CRC 4

- 12.3.32 CRC4 connects sub-Sites 3(a) and 3(b) and runs entirely through a single agricultural field east of Cleeve Prior.

CRC 5

- 12.3.33 CRC5 connects sub-Sites 3(b) and 3(c) and runs through a small section of an agricultural field southeast of Cleeve Prior.

CRC 6

- 12.3.34 CRC6 connects sub-Sites 3(d) and 3(e), and runs entirely through one agricultural field east of Buckle Street. It is bordered to the west by Foxes Farm.

CRC 7

- 12.3.35 CRC7 connects Sites 3 and 4. From sub-Site 3(c) it travels directly south through farm fields, crossing Blake's Hill (a minor road) east of Pebworth Road Poultry Site. It then continues south through agricultural land before crossing Shinehill Lane and Gate Inn Brook before connecting to Site 4.

Tranquillity, Dark Skies and Sense of Place

- 12.3.36 There is a feeling of tranquillity across the whole Site, especially when away from the larger village infrastructure and the local road network. The undulating landscape creates areas of quiet, intimate and enclosed sense of place, as well as areas of feelings of dramatic expanse, breathing space and long distance views.

- 12.3.37 Although areas of the Site can feel remote, there is little sense of wildness, due to the working farmland, awareness of properties and vehicles on lanes and roads, views out to settlement areas, and the presence of infrastructure such as pylons and overhead lines.
- 12.3.38 As set out in The Campaign to Protect Rural England's (CPRE) dark skies mapping²⁶⁹, the Site is set largely within an area of darkness (0.25-0.5 nanowatts/cm²/sr), with Site 4 being within a lighter area of 1-2 nanowatts/cm²/sr due to its proximity to Evesham and its outlier settlements.
- 12.3.39 The study area is within an attractive area rich in biodiversity, cultural features and valued landscapes. These are noted below.

Designated Landscapes

- 12.3.40 Volume II, Figure 12.2 sets out Designations of Relevance to Landscape, as noted below.
- 12.3.41 The National Landscape (NL) of the Cotswolds is 4.8 km to the east of the Site at its closest point (namely sub-Site 3(d) and the foot of Meon Hill) and swings around to the southwest at Bredon Hill (over 9 km from sub-Site 4). There is intervisibility to the higher ground within this NL from some sub-Site areas. Despite the distances involved it is deemed appropriate to consider further the key views from the Cotswolds and the potential impacts on the special qualities and the setting of this National Landscape.
- 12.3.42 The distinctive 'backbone' of the Malvern Hills National Landscape can also be discerned from some locations; however, this landscape is over 26km away at its closet point and significant effects are highly unlikely on the setting or views at this distance.
- 12.3.43 SoADC has designated large areas of its district as a Special Landscape Area (SLA). The Special Landscape Areas Study (2012)³³² describes these areas based on the characterisations set out within the Warwickshire Landscape Assessment and Guidelines³³⁵ and the Stratford on Avon District Design Guide³³⁹.
- 12.3.44 SLA 4 Arden extends across the whole of sub-Site 1(e) and across the northwest corner of sub-Site 2(a). The area is designated due to the scenic quality in terms of the juxtaposition of well wooded rounded hilltops and slopes enclosing valleys, fine oak dominated hedgerows, intimate pastoral scenes, cultural heritage features and sense of tranquillity.

²⁶⁹ Campaign to Protect Rural England (2016) CPRE light pollution and dark skies map. Available at: <https://www.cpre.org.uk/what-we-care-about/nature-and-landscapes/dark-skies/englands-light-pollution-dark-skies-map/>

Historic and Natural Environment Designations

- 12.3.45 The baseline landscape character is influenced by numerous historic designations including Scheduled Monuments, Conservation Areas, listed buildings, and two RPGs. See Chapter 13 Historic Environment of this Report for further details. None of these are directly affected but, consideration of the effect on setting will be given within the LVIA to these designated features. Reference will also be made to published Historic Landscape Characterisation documents to aid the understanding the significance of historic landscape development and inherited character as well as helping to inform landscape mitigation opportunities. See Chapter 13 Historic Environment of this Report for further details.
- 12.3.46 There are three SSSI within the study area, the closest being at Broom Railway Cutting (approximately 100 m to the east of sub-Site 2(e)).
- 12.3.47 There is a Local Geology Site (LoGS), Site 64 Marsh Farm, adjacent to sub-Site 2(d) along the A46. This is designated for rare exposure of sand and gravel of the second terrace of the River Avon. CRC3 corridor passes close to LoGS 69 Marlcliff²⁷⁰ as it crosses the River Avon. Site 69 is designated for its rarely exposed Blue Anchor and Westbury Formations.
- 12.3.48 There is a Local Wildlife Site (LWS), Alcester - Broom Disused Railway, at the east of sub-Site 2 running through sub-Sites 2(e) and 2(b) and another LWS, River Avon, that CRC3 crosses.
- 12.3.49 Ancient Woodland is mainly present near to the central area of the Site, adjacent to Sites 1 and 2, and CRC1 passes close to one area of Ancient Woodland.
- 12.3.50 The Dorsington area of the Heart of England Forest extends roughly across the eastern sites of Site 3 between Barton and Pebworth and there are PRow as well as permissive routes through the woodland areas, many of which are newly planted.
- 12.3.51 All woodlands, trees and hedgerows that lie within or immediately adjacent to the Site will be considered as part of the LVIA.
- 12.3.52 An Arboricultural Impact Assessment and information from the ecology and biodiversity and historic environment assessments will help to inform the LVIA and understand the integration of habitats, biodiversity and heritage settings on the character of the landscape and its value and susceptibility.

²⁷⁰ Warwickshire Geological Conservation Group (2002) Warwickshire Local Geological Site. Available at: <https://www.wgcg.co.uk/>

National Character Assessments

- 12.3.53 Volume II, Figure 12.3 presents the boundaries of the published landscape character areas described below.
- 12.3.54 The Site spans the boundary between two National Character Areas (NCA), as defined by Natural England, that cut east-west across Sites 1 and 2 between Broom and Morton Wood.
- 12.3.55 The Severn and Avon Vales NCA 106²⁷¹ lies to the south encompassing the southern half of Site 1, the majority of Site 2 and all Sites 3 and 4; with Arden NCA 97²⁷² spreading north from this junction point covering the tip of Site 2, the northern half of Site 1, and CRC1 corridor.

Severn and Avon Vales NCA 106

- 12.3.56 This large scale NCA extends south to embrace the Bristol Channel:
- "The lower valleys of the rivers Severn and Avon dominate this low-lying open agricultural vale landscape made up of distinct and contrasting vales... with Cotswold outliers like Bredon Hill punctuating the otherwise flat vale landscape... The majority of the area is used as agricultural land... Woodland is sparse and it is a generally open landscape."*

Arden NCA 97

- 12.3.57 Arden is a large scale NCA extending north to Tamworth and east west to embrace Birmingham and Coventry. It is therefore a complex character area with heavily urbanised areas. However, overall:
- "Arden comprises farmland and former wood-pasture lying to the south and east of Birmingham.... The landscape of the lower lying central area is gently rolling with small fragmented semi-natural and ancient woodlands. Mature oaks set in hedgerows, distinctive field boundaries, historic parklands and narrow river corridors are key features, all on the doorstep of a heavily urbanised area."*

Regional Character Assessments

- 12.3.58 Volume II, Figure 12.3 presents the boundaries of the published landscape character areas described below.

²⁷¹ Natural England (2012) NCA Profile: 106 Severn and Avon Vales (NE336). Available at: <https://publications.naturalengland.org.uk/publication/1831421>

²⁷² Natural England (2012) NCA Profile: 97 Arden (NE337). Available at : <https://publications.naturalengland.org.uk/publication/1819400>

Warwickshire LCA

- 12.3.59 WaCC produced the Warwickshire Landscape Guidelines Assessment in 1993²⁷³, mapping the special characteristics of the county. The Site sits across the Arden and the Avon Valley Character Areas defined by these guidelines. However, SoADC produced a Renewable Energy Landscape Sensitivity Study in 2014³²⁸ which reviews these areas and provides an up-to-date characterisation with more relevance to the Scheme. Thus, this report and the Landscape Types described within it will inform the LVIA as set out below.

Stratford on Avon LCA

- 12.3.60 As noted above, SoADC's Renewable Energy Landscape Sensitivity Study³²⁸ refined the Landscape Character Types within the Warwickshire Landscape Guidelines³⁴⁸.
- 12.3.61 The following Landscape Types within the study area may potentially be impacted by the Scheme:
- Arden Wooded Estatelands (sub-Site 1(c) and 1(e));
 - Avon Orchard Belt (sub-Site 1(c), 1(d), 2(a), 2(b), 2(c), 2(d), 3(b), 3(g), CRC2, CRC3 and CRC4);
 - Avon Terrace Farmlands (sub-Site 2(d), 2(e) and CRC3); and
 - Avon River Meadowlands (sub-Site 2(b), 2(e) and CRC3).

Worcestershire LCA

- 12.3.62 WoCC produced a LCA³²⁹ as a supplementary guidance document with supporting technical guidance and interactive map. This guidance is also recommended by Wychavon Council.
- 12.3.63 The Worcestershire LCA divides the whole of Worcestershire into Landscape Types; five of these are defined as "unsettled" within which there is a high presumption against new built development.
- 12.3.64 The following Landscape Types within the study area may potentially be impacted by the Scheme, two of which are classed as unsettled:
- Wet Pasture Meadow (sub-Site 1(b) and CRC1) – Unsettled Landscape;
 - Principal Timbered Farmlands (CRC1);
 - Settled Farmlands with Pastoral Land Use (CRC1);

²⁷³ Warwickshire Council (2026) Warwickshire Landscape Guidelines Assessment. Available at: <https://www.warwickshire.gov.uk/landscapeguidelines>

- Village Claylands (sub-Site 1(b), 3(b), 3(c), 3(d), 3(e), CRC1, CRC5, CRC6 and CRC7);
- Wooded Estatelands (sub-Sites 1(a) and 1(c));
- Timbered Plateau Farmlands (sub-Site 1(a));
- Riverside Meadows (CRC3) – Unsettled Landscape;
- Village Farmlands with Orchards (sub-Site 3(a), 3(b) and CRC3);
- Principal Village Farmlands (sub-Site 4 and CRC7).

Visual Amenity Baseline

- 12.3.65 Visual receptors are the people who live in, work in, or visit the study area, and whose visual amenity could potentially be affected by the Scheme.
- 12.3.66 Key visual receptors within the study area include residential receptors from isolated or clusters of properties and some edge of village properties. There are limited views from larger settlements. Many of the properties are farms and therefore farm workers are visual receptors within the area.
- 12.3.67 There are numerous local PRow within the study area, including three designated long-distance PRow: Shakespeare's Avon Way; Millenium Way; and the Heart of England Way. Additionally, there are permissive routes within the Heart of England Forest. All PRow will be assessed as part of the LVIA and views towards all or part of the Scheme verified. Consideration will be given to the transitional nature of PRow and the changing views as one moves along a route.
- 12.3.68 Local road users will similarly be considered as visual receptors and it is noted that there are some Scenic Driving Routes promoted by local authorities, such as Warwickshire "Saxons to Shakespeare" route.
- 12.3.69 Other receptors such as visitors to the relevant historic sites such as RPGs, Listed Buildings, Scheduled Monuments and Conservation Areas, as well as schools and other places of work will be considered where appropriate.
- 12.3.70 A suite of potential representative viewpoints has been identified during the initial Site walkover and informed by Ordnance Survey and Google mapping as well as recent informal discussions with Host Authorities (please see paragraph 12.3.76).
- 12.3.71 Table 12-1 below sets out the preliminary representative viewpoints, and the viewpoint locations are shown on Volume II, Figure 12.4.
- 12.3.72 The viewpoints and receptors will be subject to change throughout the scoping and LVIA process as the Scheme design develops and following verification of intervisibility on the Site as part of the LVIA.
- 12.3.73 The "likely areas of Scheme in View" set out in Table 12-1 are indicative at this stage and require verification on site.

Table 12-1 Preliminary Representative Viewpoints

Viewpoint ID	Receptors represented by the viewpoint	Likely areas of Scheme in View
VPa	Properties including Shurnock, Meadow Farm, Saltway, Brookside PRoW from Wheating Hill to Manor Farm <i>NB consideration will be given to other PRoW crossing CRC1 and residential properties with open views towards it.</i>	CRC1
VPb	Millenium Way Holt Farm, Morton Hall PRoW and Roads between Morton Hall and Inkberrow	CRC1
VP1a	Rous Lench properties, listed buildings and RPG Road between Rous Lench and Rough Hill	No View
VP1b, VP1c & VP1d	Rous Lench RPG and PRoW PRoW in Slade Wood and between Rough Hill and Goom's Hill	Sub-Sites 1(a), 1(b), 1(c)
VP1e	Properties and listed buildings at Goom's Hill Abbots Morton Conservation Area PRoW between Goom's Hills and Abbot Morton	Sub-Sites 1(a), 1(b), 1(c), CRC1
VP1f	Properties and listed buildings at Goom's Hill PROW between Goom's Hills, Abbot Morton and Morton Wood Farm Road between Goom's Hill and Morton Spirit	Sub-Sites 1(a), 1(b), 1(c), CRC1
VP1g & VP1h	Properties and listed buildings at Abbots Morton Abbots Morton Conservation Area PRoW between Morton Wood Farm and Abbot Morton Road between Goom's Hill and Morton Spirit	Sub-Sites 1(a), 1(b), 1(c), CRC1
VP1i & VP1j	Properties and listed buildings at Morton Wood PRoW around Morton Wood	Sub-Site: 1(a), 1(b), 1(c)

Viewpoint ID	Receptors represented by the viewpoint	Likely areas of Scheme in View
VP1k	PRoW between Morton Wood and Cock Bevington Properties and listed buildings at Morton Wood, Wood Bevington and Cock Bevington Setting of Special Landscape Area	Sub-Sites 1(a), 1(b), 1(c), 1(d), 1(e), 2(a), 2(d), CRC1, CRC2
VP1l	PROW and road between Goom's Hill and Morton Spirit	Sub-Sites 1(a), 1(b), 1(c)
VP1m	Properties and listed buildings at Wood Bevington PRoW between Wood Bevington and Cock Bevington and Poole Wood Setting of Special Landscape Area	Sub-Sites 1(a), 1(c), 1(d), 1(e), CRC2
VP1n, VP1o & VR1p	Properties and listed buildings at Weethley, Weethley Bank and Weethley Gate PRoW between Weethley Wood and B4088 B4088 Special Landscape Area and setting	Sub-Sites 1(a), 1(c), 1(d), 1(e), CRC2
VR1q	Properties, listed buildings and PRoW at Knighton	Sub-Sites 1(a), 1(c), 1(d), CRC1
VR1r	Properties at Dunnington/Dunnington Heath Farm B4088 Setting of Special Landscape Area	Sub-Sites 1(c), 1(d), 1(e), 2(a), 2(c), 2(d), CRC2
VR2a	Properties and listed buildings at Dunnington PRoW between Dunnington and Salford Prior Setting of Special Landscape Area	Sub-Sites 2(a), 2(c), 2(d), CRC2
VR2b	PRoW between Ragley Hall RPG and Dunnington Property and listed building at Holly Bush Special Landscape Area Setting of Ragley Hall RPG Roads adjacent	Sub-Sites 2(a), 2(c), 2(d), CRC2

Viewpoint ID	Receptors represented by the viewpoint	Likely areas of Scheme in View
VR2c	Properties and listed buildings at Wixford Heart of England Way PRoW between Wixford and Broom	Sub-Sites 2(a), 2(b)
VR2d & VR2m	Properties and listed buildings at Broom Broom Conservation Area Heart of England Way PRoW between Wixford and Broom and Marriage Hill	Sub-Sites 2(a), 2(b), 2(d), 2(e)
VR2e & VR2n	PRoW between Broom and Marriage Hill/ Salford Priors A46 and road between Dunnington and Broom	Sub-Sites 2(a), 2(b), 2(d), 2(e), CRC3
VR2f	Properties and listed buildings at Bidford-on-Avon PROW between Broom and Bidford-on-Avon	Sub-Sites 2(a), 2(b), 2(d), 2(e), CRC3
VR2g	Properties at Dunnington, Tothall Farm, Salford Priors, Cock Bevington PRoW between Dunnington, Salford Prior and Mudwalls Adjacent road	Sub-Sites 2(a), 2(c), 2(d), 2(e), 1(c), 1(d), CRC2
VR2h	Properties and listed buildings at Cock Bevington PRoW between Cock Bevington, Wood Bevington and Dunnington	Sub-Sites 2(a), 2(c), 2(d), 2(e), 1(c), 1(d), 1(e), CRC2
VR2i	Properties at Rushford	Sub-Sites 2(c), 2(d)
VR2j	Properties at Iron Cross and Salford Priors Adjacent road	Sub-Sites 2(a), 2(c), 2(d),
VR2k	Properties at Salford Priors PRoW between Salford Priors and Dunnington	Sub-Sites 2(a), 2(c), 2(d), 2(e), CRC3

Viewpoint ID	Receptors represented by the viewpoint	Likely areas of Scheme in View
VR2l	Properties and listed buildings at Oversley Hill and Wixford Heart of England Way PRoW between Wixford and Oversley Hill	Sub-Sites 2(a), 2(b), 2(c), 2(d), 2(e), CRC3
VR2p	Properties and listed buildings at Dunnington, Cock Bevington, Wood Bevington and Mudwalls PRoW between Wood Bevington and Mudwalls	Sub-Sites 1(a), 1(c), 1(d), 2(a), 2(d) 2(c), CRC3
VR3a	Properties and listed buildings at Cleeve Prior Cleeve Prior Conservation Area Shakespeare's Avon Way Adjacent PRoW	Sub-Sites 2(a), 2(d) 2(c), 3(a), CRC3
VR3b, VR3c, VR3g, VR3h , VR3i & VR3j	Properties and listed buildings at Bickmarsh Adjacent PRoW Roman Road	Sub-Sites 3(b), 3(c), 3(d), 3(e), 3(f), 3(g), CRC3, CRC6
VR3d , VR3e and VR3f	Properties and listed buildings at Barton and Dorsington Heart of England Way Heart of England Forest	Sub-Sites 3(e), 3(f), 3(g),
VR3k VR3m, VR3l , VR3o , VR3p & VR3q	Properties and listed buildings at Cleeve Prior Cleeve Prior Conservation Area PRoW between Cleeve Prior, Bickmarsh, Ullington and North Littleton	Sub-Sites 3(a), 3(b), 3(c), 3(d), 3(e), 3(g), CRC3, CRC4, CRC5, CRC6, CRC7

Viewpoint ID	Receptors represented by the viewpoint	Likely areas of Scheme in View
VR3r, VR3s & VR3t	Properties and listed buildings at Pebworth Pebworth Conservation Area Properties, scheduled monument and listed buildings at Ullington PRoW between Bickmarsh and Pebworth and Ullington Roman Road	Sub-Sites 3(b), 3(c), 3(d), 3(e), CRC3, CRC6, CRC7
VR3u	PRoW between Bunkers Hill and Dorsington	Sub-Sites 3(g), 3(f)
VR4a, VR4b & VR4c	Properties and listed buildings at South Littleton South Littleton Conservation Area	Sub-Site 4, CRC7,
VR4d, VR4e & VR4i	Properties and listed buildings at Bretforton Bretforton Conservation Area PRoW between Bretforton and South Littleton	Sub-Site 4, CRC7
VR4f	Properties and listed buildings at North Littleton North Littleton Conservation Area PRoW between South Littleton and North Littleton	Sub-Site 4, CRC7
VR4g	PRoW between Sheen Hill and South Littleton	Sub-Site 4, CRC7
VR4h	Properties and scheduled monument at Bennetts Hill	Sub-Site 4, CRC7
TBC	Highpoints and Designated Viewpoint locations within the Cotswolds NL will be considered	Sub-sites 1, 2, 3

- 12.3.74 Once the representative viewpoints are finalised and agreed, it is proposed to produce verified view photomontages (covering both summer and winter) which would be accurate visual representations of the Scheme within key viewpoints. At this stage it is anticipated that 3 to 6 photomontages would be produced for Sites 1, 2, 3 and 4. It is not proposed to produce any photomontages for the CRs on the basis that all development will be below ground.

- 12.3.75 The locations for the photomontages have been proposed, as indicated by **bold** type in the table above and on Volume II, Figure 12.4. These locations will be further discussed with the Host Authorities to help to ensure a clear and reliable depiction of how the Scheme would appear in the context of the view.

Consultation

- 12.3.76 In advance of the submission of this Scoping Report, the early opinion regarding a preliminary list of potential viewpoint locations was sought from WaCC, WoCC, SoADC, WyDC and the Cotswolds National Landscape Board.
- 12.3.77 To date, responses have been received from all of those listed, with the exception of SoADC. Where possible, their advice has been incorporated within this document and will be developed further within the LVIA process.

12.4 Assessment Methodology

- 12.4.1 The proposed methodology for the LVIA draws upon the following established best practice guidance:
- Guidelines for Landscape and Visual Impact Assessment (GLVIA3)²⁵⁹ (LI/IEMA, 2013);
 - Landscape Institute Technical Guidance Note (LITGN) 2024-01 Notes and clarifications on aspects of GLVIA3²⁵⁹;
 - LITGN 06/2019²⁶⁵: Visual Representation of Development Proposals, noting this is currently under review; and
 - LITGN 02/21²⁶⁶: Assessing landscape Value outside national designations.
- 12.4.2 The LVIA process requires that a clear distinction is drawn between landscape and visual aspects.
- 12.4.3 Judging landscape and visual effects requires methodical consideration of the value, susceptibility and sensitivity of the identified landscape and visual receptors and the magnitude of potential impacts, together with assessment of the significance of the effects on the landscape and visual receptors.

- 12.4.4 The assessment will consider the impact and effects of the Scheme during construction, operation and decommissioning, with operation assessed at Year 1 on completion of the Scheme and at Year 15 when mitigation planting is anticipated to have successfully established and grown to provide effective mitigation. The assessment will consider effects during winter and summer to allow for changes due to foliage.
- 12.4.5 A summary of the key steps involved in undertaking the LVIA are set out below:
- Define the scope of assessment, including the study area to establish the baseline. Undertake a desk-based study followed by field surveys to:
 - Identify landscape receptors – i.e. landscape character as defined by published LCA, designated landscape areas and landscape features noted on Site that may potentially be affected by the Scheme.
 - Identify visual amenity receptors – i.e. people who live in, work in or visit the study area that may potentially be affected by the Scheme.
 - Identify potential impacts of the Scheme. The term “impact” is defined as “the action being taken”.
 - Identify design measures to mitigate potential adverse impacts. Embedded mitigation will take the form of the design principles (e.g. design parameters) and landscaping and planting commitments secured in the oLEMP. Possible enhancement measures (over and above measures required for mitigation) may also be identified.
 - Make judgements on receptor sensitivity. This is a receptor's susceptibility to changes combined with the value of the receptor.
 - Landscape value is judged based on aspects including designations within the landscape, local distinctiveness, sense of place, tranquillity, natural features of interest and cultural associations.
 - Visual amenity value is judged based on how the receptor may experience the view and whether the view is a recognised location.
 - Susceptibility is the ability of the landscape receptor or view to accommodate the Scheme without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
 - Identify the likely magnitude for each impact, accounting for both embedded and essential mitigation measures. Impact magnitude is

a combination of the size or scale, geographical extent and the duration and reversibility of the change.

- Combine the receptor's sensitivity with the anticipated impact magnitude to assess the residual significance of the landscape or visual effect. The term "effect" is defined as the "change resulting from an action" or "the consequence of an action".

- 12.4.6 The method for determining the significance of landscape and visual effects is the same as set out in Section 2.3 of this Report. The criteria set out in Table 2-1 and Table 2-3 for determining receptor sensitivity and impact magnitude will be modified to align with the GVLIA3.
- 12.4.7 The LVIA will be supported by figures, photographs and photomontages as appropriate.

12.5 Embedded Mitigation

- 12.5.1 The Scheme will evolve through an iterative design process. A series of design principles will be embedded into the design and will include the consideration of landscape and visual impacts which, given its significance as an environmental topic, will be one of the key criteria for assessment and sensitive design modification. It will also be an important component in the eventual assimilation of the Scheme within its setting.
- 12.5.2 Mitigation measures will be developed iteratively throughout this design process and the LVIA and inform the layout and final design of the Scheme.
- 12.5.3 Full consideration will be given to landscape management strategies within the relevant published Landscape Character Types (LCTs) and LCAs in designing mitigation measures, as well as requirements from ecological and historical perspectives.
- 12.5.4 Initial anticipated embedded mitigation measures include:
- Restricting development in environmentally sensitive locations and applying appropriate development offsets and buffers from visual receptors (such as residential properties and listed buildings), as well as landscape features including ancient woodland, hedgerows, trees and watercourses. PRow will be integrated, avoided, screened or diverted as appropriate;
 - Retention and enhancement of existing vegetation throughout the Site, wherever feasible;
 - Avoiding hilltop locations where possible to protect distinctive landscape features;
 - Reinforcement of existing field boundaries, where applicable;

- New location appropriate planting and features to provide visual screening, break up the extent of visible infrastructure, and link existing habitats to provide enhanced green infrastructure and biodiversity opportunities;
- Design choices for new infrastructure e.g. use of colours aligning with the natural landscape and/or styles in keeping with existing infrastructure; and
- Adjusting the alignment of the CRs to avoid designated areas and root protection zones of trees and hedgerows, wherever possible.

12.5.5 An oLEMP and supporting landscape plans will be prepared to accompany the DCO application, together with an oCEMP, oOEMP and oDEMP. These will detail the planting strategy and its management to ensure its establishment and successful implementation throughout construction, operation and eventual decommissioning.

12.6 Likely Significant Effects

- 12.6.1 The Scheme is expected to have adverse effects on both landscape and visual receptors, some of which are likely to be significant given the quality of the existing landscape, and the scale of the Scheme.
- 12.6.2 Possible landscape and visual receptors where significant effects could arise include Special Landscape Area Arden (mainly impacted by sub-Sites 1(e), 1(c) and 2(a)), the Wet Pasture Meadow and Riverside Meadow landscape types (impacted by sub-Sites 1(b), 2(b), 2(e), CRC1 and CRC3), as well views from adjacent residential properties and PRow passing through or close to the sub-Sites.
- 12.6.3 During construction and decommissioning effects will be caused by the increased vehicles movements and activities within the Site creating detractors within the view. No major loss of existing vegetation is anticipated but there may be minor loss of vegetation for access arrangements and to facilitate construction.
- 12.6.4 During operation the key effects are likely to be due to the replacement of the existing arable/pastoral landscape with a solar development landscape and associated features and resultant changes to views and sense of place.
- 12.6.5 The initial LVIA work will inform the final design of the Scheme, which will then include measures to design out, reduce or mitigate potential adverse visual effects on landscape and visual receptors. Indicative embedded mitigation measures have been noted in section 12.5 above.

Cumulative Effects

- 12.6.6 The assessment will undertake a cumulative assessment of landscape and visual effects that considering the Scheme along with other identified committed developments. The approach and scope of developments to be included within the cumulative assessment has been set out in Chapter 16 Cumulative Effects.

12.7 Assumptions and Limitations

- 12.7.1 The LVIA will assess the construction and decommissioning periods as well as the operation of the Scheme at year 1 and year 15 both during summer and winter months.
- 12.7.2 Lighting is proposed to be minimal. It will be temporary during construction for safe working and during operation, motion sense security lighting is proposed at the substations and BESS only. A high-level consideration of the effects of proposed lighting will also be noted as part of the LVIA where appropriate, however a full assessment is not considered necessary.
- 12.7.3 The LVIA and consideration of visual effects arising from the Scheme will be made from publicly accessible locations, with professional judgement used to consider views from residential properties.

Residential Visual Amenity Assessment

- 12.7.4 As set out in Landscape Institute's Technical Guidance Note 02/19: Residential Visual Amenity Assessment (RVAA)³³⁸, there is no automatic legal 'right to a view', even in the case of significant impacts to residents' outlook. However, this is balanced against situations where *"the outlook / visual amenity of a residential property is so great that it is not generally considered to be in the public interest to permit such conditions to occur where they did not exist before"*.
- 12.7.5 Therefore, should the findings of the LVIA result in significant adverse effects on visual amenity for a residential property, discussion will be undertaken with the relevant planning authority as to whether they require a separate RVAA to be undertaken.
- 12.7.6 Any RVAA will be undertaken in accordance with the Technical Guidance Note 02/2019 and the methodology and properties to be included will be agreed with the relevant planning authority.

12.8 Conclusions on Scoping

12.8.1 The following tables set out the landscape and visual receptors proposed to be scoped into the assessment. Where receptors have been scoped in or out, this applies to construction, operation, and decommissioning.

Table 12-2 Landscape Receptors Scoped In/Out

Landscape Receptor	Scoped in/out	Justification
National Landscapes		
Cotswolds	In	Sites 1 and 2 are over 10 km away and Sub-Sites 3 and 4 are 4-6 km away, however there is intervisibility from all Sites, therefore, considering its national importance this NL will be scoped in to confirm no significant effects on its setting.
Malvern Hills	Out	This National Landscape is discernible from some locations across the Site, but at over 26 km away significant effects are highly unlikely.
Special Landscape Areas		
Arden SLA	In	Sub-Site 1 (e) is entirely within this SLA and potential effects on the SLA will be scoped in. The northwest area of sub-Site 2(a) is within this SLA and sub-Site 2(b) lies immediately adjacent to it.
Published LCAs		
National Character Area: Arden NCA97	In	Scoped In due to the location of the Site on the NCA boundary and the scale of the Scheme with the potential for the NCA to be affected.
National Character Area: Severn and Vales NCA106	In	Scoped In due to the location of the Site on the NCA boundary and the scale of the Scheme with the potential for the NCA to be affected.
Regional Character Areas: Stratford-on-Avon Renewable Energy Landscape Sensitivity Study	In	The following LCTs are directly affected by the Scheme and have possible visual interconnectivity: - Arden Wooded Estatelands - Avon Orchard Belt - Avon Terrace Farmlands - Avon River Meadowlands There are no other LCTs within the study area extent and therefore those not listed are Scoped Out.

Landscape Receptor	Scoped in/out	Justification
WoCC, LCA, Supplementary Guidance	In	The following LCTs are directly affected by the Scheme and have possible visual interconnectivity: - Wet Pasture Meadow - Principal Timbered Farmlands - Settled Farmlands with Pastoral Land Use - Village Claylands - Wooded Estatelands - Timbered Plateau Farmlands - Riverside Meadows - Village Farmlands with Orchards - Principal Village Farmlands There are no other LCTs within the study area extent and therefore those not listed are Scoped Out.
Night-time effects	In	A high-level appraisal of the effect of proposed lighting during construction, decommissioning and operation will be undertaken. This will not constitute a Lighting Impact Assessment but will form part of the LVIA. A lighting strategy will be required as part of the oCEMP, oDEMP and oOEMP to ensure significant effects do not arise.

Table 12-3 Visual Receptors Scoped In/Out

Visual Receptor	Scoped in/out	Justification
Representative viewpoints (see Table 12-1)	In	All the receptors noted within Table 12-1 will be Scoped In to the assessment. These are mainly residential receptors, PRoW users, road users and views from or towards historical designations and the NL. The actual receptors to be represented by each viewpoint will be defined within the LVIA once viewpoints have been agreed and initially assessed.
Night-time effects	In	Although proposed lighting is minimal, a high-level appraisal will be included as part of the LVIA for the visual receptors.
Dark skies	Out	Given the minimal proposed lighting, the overall effect on Dark Skies is not considered to be significant.

13 Historic Environment

13.1 Introduction

13.1.1 This chapter sets out the scope and methodology for the Historic Environment assessment for the Scheme. The Historic Environment encompasses all aspects of cultural heritage, and the terms are used interchangeable here, with 'historic environment' being the preferred terminology set out in professional guidance. Specifically, this chapter covers the following matters:

- The extent and value of known archaeological remains, including scheduled monuments, and the potential impacts and effects on them arising from the Scheme.
- The potential for unknown archaeological remains.
- The location and value of built heritage assets such as conservation areas, listed buildings and non-designated historic buildings, and the potential changes to their value arising from the Scheme.
- The presence and value of historically designed landscapes and the capacity for the Scheme to affect these heritage assets.

Study Area

13.1.2 The 'Study Area' refers to the land within a 500 m or 1 km radius of the Site, depending on the receptor. All distances provided within this chapter are adjusted to the nearest 5 m.

13.1.3 The extents of the Study Area are based on professional judgement, and have been determined in line with consultation with LPAs' archaeological advisors and Historic England. Further detail is provided in Section 13.4.2. The extents have been designed to be proportionate to, as well as account for the sensitivity of, the historic environment and the potential impacts of the Scheme. These, therefore, account for:

- The wider historical and archaeological context of the Scheme.
- The settings of heritage assets within the Scheme and Study Area.
- The potential for heritage assets to survive within the Scheme.

- 13.1.4 A 500 m buffer is considered appropriate and was agreed with WaCC and WoCC archaeological advisors to understand the known archaeological resource and the potential for as-yet unknown buried archaeological remains. A 1 km buffer has been identified for the purpose of understanding the designated heritage assets and built heritage, where wider landscapes and setting may contribute to their significance. This Study Area is deemed sufficient to inform the historic environment baseline for assessment. It is considered unlikely that assets beyond 1 km would have prominent or dominating views of the Scheme. Data on all heritage assets has been gathered to characterise the historic environment, inform the understanding of potential impacts and identify the potential for as-yet unknown archaeological remains within the Study Area.
- 13.1.5 During the assessment process, the Study Area may be extended or reduced based on the results of the assessments, particularly those related to landscape and visual impact, which can inform possible impacts on the settings of more distant designated heritage assets. The Study Area is likely to also be amended as the CRC is refined, as guided by environmental assessment and engineering requirements.

13.2 Legislation, Policy and Guidance

- 13.2.1 The following legislation is relevant to the historic environment assessment:
- Planning and Infrastructure Act (2025)³;
 - Ancient Monuments and Archaeological Areas Act (1979) (as amended)²⁷⁴;
 - Planning (Listed Buildings and Conservation Areas) Act (1990)²⁷⁵;
 - Historic Buildings and Ancient Monuments Act (1953)²⁷⁶;
 - The Hedgerows Regulations 1997 (as amended)²⁷⁷;
 - Treasure Act 1996²⁷⁸ & Treasure (Designation) (Amendment) Order 2023²⁷⁹; and
 - Burial Act 1857 (as amended)²⁸⁰.

²⁷⁴ Ancient Monuments and Archaeological Areas Act 1979. Available at: <https://www.legislation.gov.uk/ukpga/1979/46/contents>

²⁷⁵ Planning (Listed Buildings and Conservation Areas) Act 1990. Available at: <https://www.legislation.gov.uk/ukpga/1990/9/contents>

²⁷⁶ Historic Buildings and Ancient Monuments Act 1953. Available at: <https://www.legislation.gov.uk/ukpga/Eliz2/1-2/49/contents>

²⁷⁷ Hedgerows Regulations 1997. Available at: <https://www.legislation.gov.uk/uksi/1997/1160/contents>

²⁷⁸ Treasure Act 1996. Available at: <https://www.legislation.gov.uk/ukpga/1996/24/contents>

²⁷⁹ The Treasure (Designation) (Amendment) Order 2023. Available at: <https://www.legislation.gov.uk/ukdsi/2023/9780348244854>

²⁸⁰ Burial Act 1857. Available at: <https://www.legislation.gov.uk/ukpga/Vict/20-21/81/contents>

13.2.2 The following policy is relevant to the historic environment assessment:

- Overarching NPS for Energy (EN-1) (DESNZ, 2025)¹³
- NPS for Renewable Energy Infrastructure (EN-3) (2025)¹⁴
- NPS for Electricity Networks Infrastructure (EN-5)¹⁵
- NPPF (2024)¹⁸
- South Worcestershire Councils (SWC: Malvern Hills District Council, WyDC and Worcester City Council) (2016) The SWDP²⁴
- Stratford-on Avon District Council (2016) Stratford-on Avon District Core Strategy 2011-2031²⁵
- Borough of Redditch Local Plan No.4, Adopted (2017) ReBC²³

13.2.3 The following guidance documents will be considered within the historic environment assessment:

- PPG (2024)¹⁹;
- Code of Conduct (ClfA 2023)²⁸¹;
- Standards and guidance for historic environment desk-based assessment (ClfA, 2020)²⁸²;
- Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment (ClfA 2020)²⁸³;
- Archaeology and Solar Farms: Good Practice (Draft) (ClfA, 2025)²⁸⁴;
- Conservation Principles, Policies and Guidance (Historic England, 2008)²⁸⁵;
- Managing significance in decision-taking in the historic environment, Historic Environment Good Practice Advice in Planning Note 2 (Historic England, 2015)²⁸⁶;

²⁸¹ Chartered Institute for Archaeologists, (2022) Code of conduct: professional ethics in archaeology. Available at: <https://www.archaeologists.net/sites/default/files/2023-11/ClfA-Code-of-Conduct-2022.pdf>

²⁸² Chartered Institute for Archaeologists, (2020) Standard and Guidance for Historic Environment Desk-Based Assessment. Available at: <https://www.archaeologists.net/sites/default/files/2023-11/ClfA-SandG-DBA-2020.pdf>

²⁸³ Chartered Institute for Archaeologists (2020) Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment. Available at: <https://www.archaeologists.net/sites/default/files/2023-11/ClfA-SandG-Archaeological-Consultancy-2020.pdf>

²⁸⁴ Chartered Institute for Archaeologists (2025) Archaeology and Solar Farms: Good Practice (Draft). Available at: <https://www.archaeologists.net/sites/default/files/2025-08/Good-Practice-Guide-Archaeology-and-Solar-Farms-Ver-1.11-CONSULTATION-DRAFT.pdf>

²⁸⁵ Historic England (2008) Conservation Principles, Policies and Guidance. Swindon. Historic England. Available at: <https://historicengland.org.uk/advice/constructive-conservation/conservation-principles>

²⁸⁶ Historic England (2015) Managing significance in decision-taking in the historic environment, Historic Environment Good Practice Advice in Planning Note 2. Swindon. Historic England. Available at: <https://historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/gpa2/>

- Preserving Archaeological Remains, Decision-taking for Sites under Development (Historic England, 2016)²⁸⁷;
- The Setting of Heritage Assets, Historic Environment Good Practice Advice in Planning Note 3 (Historic England, 2017)²⁸⁸;
- Statements of Heritage Significance: Analysing Significance in Heritage Assets, Historic England Advice Note 12 (Historic England, 2019)²⁸⁹;
- Commercial Renewable Energy Development and the Historic Environment, Historic England Advice Note 15 (Historic England, 2021)²⁹⁰;
- LCA Supplementary Guidance (WoCC, 2012)²⁵³;
- Standards and Guidelines for Archaeological Projects in Worcestershire (South Worcestershire Councils, 2025)²⁹¹; and
- Stratford-on-Avon District Renewable Energy Landscape Sensitivity Study (SoADC, 2014)³²⁸

13.3 Baseline Environment

- 13.3.1 A full gazetteer of designated and non-designated assets is included in Volume III, Appendix A13.2. This will be updated into a Heritage Desk Based Assessment (DBA) which will be undertaken in order to establish the heritage baseline for the assessment. This section highlights the designated and non-designated heritage assets that may be impacted by the Scheme. Designated assets include world heritage sites, scheduled monuments, listed buildings, conservation areas, registered parks and gardens, registered battlefields, and protected wrecks. Non-designated assets include known buried archaeological deposits and built heritage assets recorded on the Historic Environment Record (HER) for the relevant authority.

²⁸⁷ Historic England (2016) Preserving archaeological remains: Decision-taking for sites under development. Swindon. Historic England. Available at: <https://historicengland.org.uk/images-books/publications/preserving-archaeological-remains/>

²⁸⁸ Historic England (2017) The Setting of Heritage Assets, Historic Environment Good Practice Advice in Planning Note 3. Swindon. Historic England. Available at: <https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/>

²⁸⁹ Historic England (2019) Statements of Heritage Significance: Analysing Significance in Heritage Assets, Historic England Advice Note 12. Swindon. Historic England.

²⁹⁰ Historic England (2021) Commercial renewable energy development and historic environment Historic England Advice Note 15. Swindon. Historic England. Available at: <https://historicengland.org.uk/images-books/publications/statements-heritage-significance-advice-note-12/heag279-statements-heritage-significance/>

²⁹¹ South Worcestershire Councils (2025) Standards and Guidelines for Archaeological Projects in Worcestershire. Available at: https://www.explorethepast.co.uk/wp-content/uploads/2025/08/WASG_Aug_2025_.pdf

- 13.3.2 This baseline is supported by the following figures:
- Volume II, Figure 13.1 – Designated Heritage Assets;
 - Volume II, Figure 13.2 – Non-designated Heritage Assets;
 - Volume II, Figure 13.3 – Historic Landscape Character; and
 - Volume II, Figure 13.4 – Historic Environment Record Events.
- 13.3.3 Designated and non-designated heritage assets outlined within this section are located within the Study Area at the time of Scoping. As outlined in Section 13.1, the Study Area may develop during the assessment process. Subsequently, designated and non-designated assets included within the assessment may change as a result, and the asset count outlined below may differ in the ES to reflect this.
- 13.3.4 Within the Study Area there are eight scheduled monuments, 222 listed buildings, two registered parks and gardens, and nine conservation areas. There are no protected wrecks or registered battlefields identified within the Study Area.
- 13.3.5 A section of one Scheduled Monument, the Enclosures $\frac{3}{4}$ mile (1200 m) N of Salford Priors (NHLE 1005721), is included within the boundary of Site 2(d) as the existing access track between Site 2(d) and 2(e). This Scheduled Monument is also located within the proposed CRC Search Area, noting this will be refined prior to application submission. There are an additional seven scheduled monuments within the Study Area. These comprise:
- Moated site 150 m north east of Inkberrow Church (NHLE 1018543) – a well-preserved example of a medieval moated settlement including associated fish ponds and agricultural systems located 345 m to the south-west of the Scheme;
 - Medieval settlement at Ullington (NHLE 1017246) – the buried and earthwork remains of the medieval settlement at Ullington, located 375 m to the south of the Scheme;
 - Cookshill Nunnery (NHLE 1005300) – a Cistercian nunnery also known as Cookhill Priory located 435 m to the north of the Scheme;
 - Oversley Castle (NHLE 1005750) – a motte and bailey castle dating from the 12th to 13th centuries located 520 m north-east of the Scheme;
 - Churchyard cross in St Milburga's churchyard (NHLE 1019760) – a medieval standing stone cross located 535 m to the east of the Scheme;
 - Moated site immediately adjacent to St Peter's Church (NHLE 1016940) – a moated site likely serving as an aristocratic residence during the medieval period located 785 m to the west of the Scheme; and

- Anglo-Saxon cemetery at Bennett's Hill (NHLE 1020258) – an early medieval cemetery site on the crest of a hill located 975 m to the west of the Scheme.

13.3.6 The enclosures north of Salford Priors (NHLE 1005721) are of particular note due to their location within Site 2. It is likely that further settlement evidence associated with the scheduled monument continues within the Site and should be treated as of high significance due to their association with the scheduled monument.

13.3.7 Of the 222 listed buildings within the Study Area, four are Grade I and 15 are Grade II*. None of the listed buildings are within the Site. The remaining 203 listed buildings are Grade II. Grade I and II* listed buildings warrant particular consideration due to the weight afforded to them under NPS EN-1. The following Grade I and II* buildings are located within the Study Area:

- Church of St Peter (Grade I, NHLE 1350229);
- Church of St Peter, Church Close (Grade I, NHLE 1350279);
- Ragley Hall (Grade I, NHLE 1355348);
- Church of St Matthew (Grade I, NHLE 1355366);
- Moor Hall (Grade II*, NHLE 1024655);
- Ragley Hall Stable Block (Grade II*, NHLE 1024692);
- Ragley Hall Principal Entrance Lodge (North) (Grade II*, NHLE 1024694);
- Ragley Hall, Principal Entrance Lodge (South) (Grade II*, NHLE 1024695);
- The Manor House (Grade II*, NHLE 1081265);
- Church of St Michael (Grade II*, NHLE 1081303);
- Former Manor House (Grade II*, NHLE 1081308);
- Dovecote to rear of former Manor House (Grade II*, NHLE 1081310);
- Church of St Andrew (Grade II*, NHLE 1081345);
- Rous Lench Court (Grade II*, NHLE 1081656);
- Cookhill Priory (Grade II*, NHLE 1096283);
- Chapel Attached to Cookhill Priory (Grade II*, NHLE 1096284);
- Shurnock Court (Grade II*, NHLE 1099994);
- Wood Bevington Manor (Grade II*, NHLE 1355368); and
- Church of St Milburga (Grade II*, NHLE 1355369).

13.3.8 There are nine conservation areas located within the Study Area, but none are within the Site. It is possible that these areas may be subject to impacts to their character and appearance along with changes to their setting. The conservation areas within the Study Area comprise:

- Abbots Morton;

- Bidford on Avon;
- Broom;
- Cleeve Prior;
- Inkberrow;
- North and Middle Littleton;
- Rous Lench;
- Salford Priors; and
- South Littleton.

- 13.3.9 There are two registered parks and gardens located within the Study Area, but none are within the Site. Both are directly adjacent to the Site. These are both associated with listed buildings. These comprise:
- Rous Lench Court (Grade II*, NHLE 1000893); and
 - Ragley Hall (Grade II*, NHLE 1001196).
- 13.3.10 Within the Study Area there are 826 known non-designated assets. Of these, 81 are located within the Site. These assets comprise a range of monuments and find spots ranging from the Palaeolithic to the modern period.
- 13.3.11 Of particular note within the Site are multiple areas of extant ridge and furrow (including WSM47161, WSM 57500), a variety of cropmarks suggestive of prehistoric settlement (including MWA1496, MWA6731, MWA6744, MWA12374, MWA30576) as well as identified domestic activity dating to the Neolithic and Bronze Age (MWA7454 and MWA7229).
- 13.3.12 There is further possibility for archaeological remains of the medieval settlements of Bevington (MWA1560), Broom (MWA9027), and Kingley (MWA6358) to extend into the Site.
- 13.3.13 Remains of post medieval date, largely consisting of post medieval farmsteads and trackways, railway lines and associated infrastructure (including MWA7233, MWA7238, WSM53188, WSM53116, WSM60766) are also present within the Site.
- 13.3.14 The Historic Landscape Characterisation (HLC) within the Study Area indicates a diverse rural landscape shaped by long-term woodland management, evolving enclosure patterns, changing agricultural practices, and settlement development. A total of 16 broad historic landscape types and 458 historic landscape types are distributed across the Study Area.

- 13.3.15 Baseline assessment has identified potential for geoarchaeological and palaeoenvironmental remains within the Study Area and also the Site, particularly surrounding CRC1 and Sub-Site 1(e). These areas include deposits identified as geologically significant with the potential for Palaeolithic remains including gravel members and head deposits. There is further potential for palaeochannels in the area, which may retain waterlogged and organic-rich sediments of significant palaeoenvironmental value.
- 13.3.16 Previous archaeological investigations conducted within the development area and the geophysical survey currently underway for the Scheme suggest potential for as-yet unknown archaeological remains within the Site. Some possible archaeological anomalies have been detected, possibly relating to enclosures and field boundaries, and there is potential for further unknown remains to be identified during ground works or archaeological investigation. The results of the geophysical surveys are not yet available for full analysis.
- 13.3.17 A full detailed baseline will be included in the forthcoming updated DBA produced at ES stage.

13.4 Assessment Methodology

- 13.4.1 An updated historic environment DBA will be developed whilst preparing the ES, in order to establish the historic environment baseline and provide a detailed assessment of impacts on the historic environment comprising archaeological remains, the historic built environment, and the historic landscape, from the Scheme.
- 13.4.2 The collection of available data on the historic environment of the Scheme and the Study Area has been compiled and will be interrogated. This includes data for nationally designated heritage assets held by the National Heritage List for England (NHLE) and LPAs' HER data on non-designated heritage assets and event records. Documentary sources including archival and published sources, and cartographic evidence will also be consulted during preparation of the DBA.
- 13.4.3 The DBA will be produced in accordance with the requirements of NPPF¹⁸, NPPs EN-1¹³, EN-3¹⁴, and EN-5¹⁵, PPG, standards specified by the Chartered Institute for Archaeologists (CIfA)^{287,288,289,290}, Historic England's Conservation Principles³⁶⁹ and local planning policies.

- 13.4.4 The assets likely to be impacted will be fully identified and their value²⁹² assessed. Where assets of related chronology occur in close proximity, or where neighbouring assets relate to linked or successive activities (e.g. funerary practices, material production etc.) their collective value is considered in the evaluating the individual value of any single asset. For example, non-designated assets will be deemed higher in significance if associated with a designated scheduled monument.
- 13.4.5 Geophysical surveys are being undertaken in Q1 2026 across the Site, not including the CRC Search Area. The results of this survey will be used to inform assessment of archaeological potential, and to inform development of the Scheme design.
- 13.4.6 Archaeological investigations will comprise non-intrusive, minimally intrusive and intrusive survey methods as appropriate to identify and establish the value of and potential impacts to the historic environment and heritage resource.
- 13.4.7 Non-intrusive and minimally intrusive survey methods will include geophysical survey and may extend to complementary techniques such as aerial multi-spectral imagery (M/S) for initial archaeological assessment where geophysical survey is shown to be sub-optimal. These methods will be evaluated for their appropriateness prior to their deployment and Project Designs (formerly Written Schemes of Investigation) will outline their application and methodology, subject to consultation with archaeological advisors for Historic England and Host Authorities.
- 13.4.8 A staged approach of survey is recommended to prioritise the early use of non-invasive and minimally invasive techniques to inform the nature, scope and programming of intrusive investigations. The results of these early survey and evaluation methodologies will then inform the need for any trial trench investigations and strip map excavations, and recommendations for any environmental commitments related to the historic environment that will be required as a Requirement of the DCO.

²⁹² NPS EN-1 defines heritage assets as those with 'Those elements of the historic environment that hold value to this and future generations because of their historic, archaeological, architectural or artistic interest'. For the purpose of this assessment, the term 'value' will be used in place of 'significance' when describing a heritage asset. This is intended to avoid potential confusion with the terminology used for impact assessment where 'significance of effect' is commonly used in EIA.

- 13.4.9 To ensure that the significance of the historic environment is properly assessed, and to ensure all development is carried out in accordance with the relevant guidance, archaeological investigations will identify areas where further archaeological evaluation and mitigation may be required and will be addressed within the DCO application documents. Non-intrusive and minimally intrusive survey methods will include geophysical survey and may extend to complementary techniques for initial survey.

Determining the Value of Heritage Assets

- 13.4.10 This section describes the proposed methodology for determining the significance of effects on heritage assets from the Scheme. The methodology comprises firstly establishing the value of the heritage assets potentially affected, using professional judgement. Then, an assessment of the magnitude of impact resulting from the Scheme will be conducted. The assessment of significance of effect will then be undertaken, which rates the heritage asset's values against the magnitude of impacts on them, to reach an assessment of the significance of effect. Effects can be neutral, adverse or beneficial. Where significant adverse effects are identified, mitigation measures to avoid or minimise such effects will be identified, and the residual significance of effect assessed.
- 13.4.11 The criteria used for establishing the value of heritage assets and magnitude of impacts, as well as the matrix used to determine the significance of effects, is described in Volume III, Appendix A13.1.
- 13.4.12 Consultation is currently underway with Historic England and Host Authorities' conservation and archaeological officers or advisors to develop the assessment methodology to inform the ES and DCO application. This consultation will be used to guide the needs for further assessments of significance and setting, as well as to inform approaches to impact and mitigation requirements.
- 13.4.13 Archaeological remains are, by their nature, an unknown resource prior to confirmation through archaeological investigations. While the information which will inform preparation of the DBA will be assumed to be accurate, it is not a complete record of the historic environment and does not preclude the potential for previously unidentified archaeological remains or deposits to be encountered. The value of any such unknown/unidentified assets cannot be determined at this time.
- 13.4.14 The assessment of effects will consider the potential for physical impacts on heritage assets from the construction of the Scheme, and the potential for impacts to the settings of heritage assets as a result of the construction, operation and decommissioning of the Scheme.

- 13.4.15 If determined appropriate in consultation with stakeholders, separate assessments of significance and setting may be prepared for highly sensitive assets such as Grade I or II* buildings or Registered Parks and Gardens and would be submitted as an appendix to the ES.
- 13.4.16 Assessments regarding the settings of historic assets will be undertaken in line with good practice guidance set out by 'The Setting of Heritage Assets Historic Environment Good Practice Advice in Planning Note 3³⁷² to ensure a comprehensive assessment of assets specifically identified in NPS EN-1.
- 13.4.17 To inform the assessment of potential impacts on the setting of heritage assets, collaboration will be undertaken with landscape and visual impact specialists during the assessment process.

Determining Effect Significance

- 13.4.18 The method set out in Section 2.3 will be used to determine the significance of any effects. The criteria for determining receptor sensitivity and impact magnitude will be amended to align with the appropriate guidance listed in Section 13.1.
- 13.4.19 Where residual effects have been determined to be 'slight' or below, it is considered to be equivalent to less than substantial harm. Whilst adverse significant effects typically equate to 'substantial harm', moderate adverse effects might, depending on the nature of the asset effected, equate to an outcome of 'less than substantial harm'. This assessment will be based on professional judgment.

13.5 Embedded Mitigation

- 13.5.1 Development of the Scheme will include embedded mitigation as an integral part of the design process, avoiding or reducing impacts to the historic environment as far as practicable. Embedded mitigation will be secured through the design and the control documents, including the oCEMP, oOEMP, oDEMP, and oLEMP.
- 13.5.2 Through this process, visually and physically intrusive infrastructure elements will be sited in areas assessed to have lower potential for impact to designated and non-designated heritage assets, archaeological remains and the historic landscape as far as practicable. The landscape design will also seek to integrate the Scheme into the landscape, and screen sensitive views as far as possible. This will be secured through the oLEMP.

- 13.5.3 Where intrusive excavation is required for higher impact zones such as for the installation of the CRC, Substations, access roads, enabling works, construction compounds and BESS, the design and siting of these elements will seek to avoid known archaeological remains or areas of archaeological potential, or minimise impacts upon these as far as practicable.
- 13.5.4 Where practicable, the Scheme will limit the necessity for excavation through design decisions, such as by retaining on-site cabling above ground attached to panels. Where excavation cannot be avoided, the use of previously disturbed areas will also be prioritised where practicable, to avoid disturbance of unknown deposits.
- 13.5.5 Assessing areas of archaeological potential and ascertaining the nature and degree of potential will inform design and the implementation of embedded mitigation measures.
- 13.5.6 Potential impacts to the settings of heritage assets and the historic landscape will also be avoided or reduced through embedded mitigation as far as practicable. This will include careful consideration of the siting of more visually intrusive elements such as Substations and the BESS in relation to the setting of heritage assets.

13.6 Likely Significant Effects

- 13.6.1 The Scheme has the potential to impact both designated and non-designated heritage assets through the construction, operation and subsequent decommissioning phases of the Scheme. Such effects will likely comprise:
- Physical impact to heritage assets comprising archaeological remains; and,
 - Changes to the landscape that might result in alteration of the historic landscape character of the area and effects upon the value of heritage assets due to changes within their settings.
- 13.6.2 Whilst the impacts relating to the construction and operation of the Scheme have the potential to cause significant effects without mitigation, it is anticipated that the decommissioning phase would not create further significant effects owing to the mitigation in place for the construction and operation of the Scheme. As such, decommissioning activities have been scoped out of further assessments.

Potential impacts to Archaeological Remains and the Paleoenvironmental Resource

- 13.6.3 The principal impact to archaeological remains and the Paleoenvironmental resource is in the form of their removal through construction or through damage via compression caused by construction works.
- 13.6.4 Physical impact to such remains would be permanent and irreversible and could give rise to loss of heritage significance without appropriate mitigative recording.
- 13.6.5 Physical effects from the Scheme may impact non-designated heritage assets and previously unrecorded or unknown archaeological remains within the Sites and CRC.
- 13.6.6 The degree of impact from the Scheme will be variable, with higher impact assessed to archaeological remains within the CRC, construction compounds, substations and battery storage areas which are more likely to have a permanent impact to the archaeological resource within these areas owing to requirements for intrusive below ground works. Physical impact to archaeological remains is anticipated within the Site and CRC, with the degree dependant on the final design and location of specific elements of the Scheme.
- 13.6.7 Decommissioning of power control infrastructure, on-site cabling, and access tracks may also result in physical impact through excavation. These impacts are expected to be of low magnitude and mitigated through requirements of the DEMP and therefore would not constitute a significant effect. As such, these activities are scoped out of further assessment.
- 13.6.8 The scope of impact from the installation of the solar panels is assessed to be limited and dispersed. Solar arrays are typically mounted on Mounting Structures with narrow (80mm C-section steel piles) supports driven or screwed into the ground rather than into pre-excavated slots. The frames are typically comprised of 3-5mm rectangular steel lengths. Mounting Structures will also be arranged with appropriate spacings between them. Above-ground concrete ballast can also be utilised where piling is deemed unsuitable, as a result of ground conditions or presence of buried archaeology. As such, the scope of impact to below-ground deposits is dispersed and limited to a small area.
- 13.6.9 Archaeological remains that are impacted by the Scheme may have associated group value with archaeological remains or designated assets within the Study Area.

Potential impacts to Historic Landscape Character and the settings of Heritage Assets

- 13.6.10 Impacts to the historic environment from the Scheme primarily comprise impacts to the settings of designated and non-designated heritage assets.
- 13.6.11 The setting of a heritage asset is defined in NPS-EN-1¹³ as “the surroundings in which it is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset and may affect the ability to appreciate that significance or may be neutral.”
- 13.6.12 The operational phase of the Scheme will constitute a change to the historical use of the land. The presence of the Scheme infrastructure within the landscape will constitute a visual change to the character of the landscape and the Scheme has the potential to change how upstanding heritage assets are experienced due to changes within their setting. It should be noted that not all changes to setting have impacts on the significance of heritage assets. In addition, the historic character of the landscape is dynamic, with HLC assessments creating a record of changes without assigning value or significance to any particular area or type.
- 13.6.13 Construction works associated with the Scheme may result in temporary setting impacts to heritage assets in proximity to the Scheme. These impacts may comprise visual impacts, noise and dust.
- 13.6.14 Changes within the historic landscape may change the settings of non-designated assets, listed buildings, conservation areas, registered parks and gardens and scheduled monuments.
- 13.6.15 This scoping assessment has identified the medium to high value designated and non-designated built heritage and archaeological remains within the Study Area as being the most sensitive to change.
- 13.6.16 The likely significant effects to the Historic Environment resulting from the Scheme that will be taken forward for further assessment in the ES are summarised in Table 13-1.

Table 13-1 Likely significant effects relating to the Historic Environment

Activity	Effect	Receptor
Construction		
Construction of: ▪ CRC and on-site cable trenches ▪ Substations and BESS foundations/ piling ▪ Solar Mounting Structure piling ▪ Access tracks ▪ Construction compounds ▪ Other grid connection infrastructure where works will be below ground	During construction, certain works to facilitate the Scheme have greater potential to impact buried archaeological remains and palaeoenvironmental remains than others. Physical impacts to archaeological remains within the Scheme boundary will result from excavation for construction and potentially from ground compression from plant during enabling works. Archaeological remains in the form of cropmarks have been noted within the Site and adjacent fields. Archaeological remains of prehistoric to modern date are noted within and adjacent to the Site and CRC. Of particular note is the Scheduled Monument area of 'Enclosures ¾ mile (1200m) N of Salford Priors' (NHLE 100571) within Site 2(d), with potential for associated non-designated archaeological remains to be present adjacent to the Scheduled Monument. Further instances of archaeological remains with associated group value and remains with evidential value that may contribute to county research framework questions are also present within the Site, CRC and the wider Study Area.	▪ Archaeology
Presence of construction activities including vegetation removal	The Scheme will constitute a change in land use and therefore a change in the historic landscape within which surrounding heritage assets sit. Vegetation clearance as part of the construction phase (associated with the creation of new accesses with adequate visibility splays to the public highway) may also impact historic hedgerows.	▪ Built heritage ▪ Historic landscape ▪ Archaeology
Operation		

Activity	Effect	Receptor
Operation of the Scheme, including solar arrays, substations and BESS	The operation phase of the Scheme could result in a change to the settings of heritage assets within the Study Area.	▪ Built heritage
Operation of the Scheme, including solar arrays, substations and BESS	The operational phase, albeit a temporary use, will constitute a long-term impact to the historic landscape character and change in the historic environment through loss of historically agricultural land.	▪ Historic landscape
Decommissioning		
Decommissioning of the Scheme	Works undertaken as part of eventual decommissioning of the Scheme, such as the removal of substations, BESS and solar arrays may have impacts to archaeological remains due to the potential for additional excavations required. Some aspects of decommissioning such as panel support removal are anticipated to be comparatively low impact. There will be embedded mitigation in the oDEMP that will ensure protections put in place during the Construction Phase and Operational Phase will apply during the Decommissioning Phase. It is considered that there are no further likely significant effects that would arise from the Decommissioning Phase of the Scheme than those that arise during the Construction Phase, as the infrastructure is removed, and the Scheme returned to its existing use. Any potential impacts to the settings of designated heritage assets during the decommissioning phase would be temporary and at a lower magnitude than those during operation. Any such impacts are, therefore, not considered significant. The Decommissioning Phase will, therefore, be scoped out of assessment.	▪ Archaeology

13.7 Conclusions on Scoping

- 13.7.1 Table 13-2 summarises the topics scoped into the assessment.
- 13.7.2 An outline Archaeological Mitigation Strategy will be developed during the EIA process to be included in the DCO application in support of any post-consent mitigation requirements.

Table 13-2 Historic Environment Topics Scoped In/Out

Topic	Scoped In/Out			Justification
	Construction	Operation	Decommissioning	
Solar Array Sites, including BESS and Substations				
Indirect impacts to Designated Assets	In	In	Out	There are eight scheduled monuments, two registered parks and gardens, nine conservation areas and 222 listed buildings within the Study Area. It is anticipated that elements of the Scheme may result in changes to the settings of these designated assets and may impact archaeological remains present within the Sites associated with these designated assets during construction, and operation. Decommissioning is expected to have impacts no worse than those of construction, with mitigation secured via the oDEMP.
Direct and Indirect impacts to Non-designated Assets	In	In	Out	There are 826 non-designated assets within the Study Area, of which 81 are located within the Site and CRC Search Area. It is anticipated that elements of the Scheme may result in changes to settings of these non-designated assets, and may impact archaeological remains present within the Site indicated by these non-designated assets. Effects could arise during construction and operation. Decommissioning is expected to have impacts no worse than those of construction, with mitigation secured via the oDEMP.
Direct Impacts to Archaeological Remains	In	In	Out	There is potential for unknown archaeological remains to be present within the Site that would be physically impacted by elements of the Scheme during construction. Where the setting of archaeological remains is important, the operational phase could result in adverse effects. Decommissioning is expected to have impacts no worse than those of construction, with mitigation secured via the oDEMP.

Topic	Scoped In/Out			Justification
	Construction	Operation	Decommissioning	
Historic Landscape	In	In	Out	It is anticipated that the Scheme will constitute a change to the Historic Landscape within which the Scheme is located, and which contributes towards the significance of some of the designated and non-designated assets within the Study Area. Aspects of the historic landscape that will be considered during the assessment process include: historic land use, landscape character and field pattern with scope for additional landscape features that are established to be relevant during the assessment process. Effects could arise during construction and operation. Decommissioning is expected to have impacts no worse than those of construction, with mitigation secured via the oDEMP.
CRCs				
Indirect impacts to Designated Assets	In	Out	Out	There are eight scheduled monuments, two registered parks and gardens, nine conservation areas and 222 listed buildings within the Study Area. It is anticipated that the works associated with constructing the CRCs of the Scheme may constitute a temporary change to the settings of these designated assets. There would be no impact during operation. Decommissioning would either retain the setting created during construction and operation or restore the previous surroundings, therefore having no additional impacts.

Topic	Scoped In/Out			Justification
	Construction	Operation	Decommissioning	
Direct impacts to Non-designated Assets	In	Out	Out	There are 826 non-designated assets within the Study Area, of which 81 are located within the Site and CRC Search Area. It is anticipated that elements of the Scheme may result in changes to settings of these non-designated assets and may impact archaeological remains present within the Site indicated by these non-designated assets. Effects could arise during construction, but there would be no impact during operation. Decommissioning is expected to have impacts no worse than those of construction, with mitigation secured via the oDEMP.
Direct Impacts to Archaeological Remains	In	Out	Out	There is potential for unknown archaeological remains to be present within the CRC Search Area that would be physically impacted by elements of the Scheme during construction. Effects could arise during construction. There would be no impacts during operation. Decommissioning is expected to have impacts no worse than those of construction, with mitigation secured via the oDEMP.

Topic	Scoped In/Out			Justification
	Construction	Operation	Decommissioning	
Historic Landscape	In	Out	Out	It is anticipated that the works associated with the construction of the Scheme CRCs may constitute a temporary change to the Historic Landscape within which the Scheme is located, and which contributes towards the significance of some of the designated and non-designated assets within the Study Area. Aspects of the historic landscape that will be considered during the assessment process include historic land use, landscape character and field pattern with scope for additional landscape features that are established to be relevant during the assessment process. There would be no impacts during operation. Cables connecting to the Feckenham sub-station will be left in situ so there would be no further impacts during decommissioning.

14 Population and Human Health

14.1 Introduction

- 14.1.1 This Human Health Chapter provides a scoping assessment that has been developed to implement the best practice guidance published by ISEP. Accordingly, it presents summary information underpinning the scoping approach and methodology proposed; and is supported by more detailed material in Volume III, Appendix A14.1.
- 14.1.2 Taken together, the scoping assessment chapter and appendix provide:
- **Receptor identification and sensitivity:** a high-level health profile for the Human Health Study Area provides the basis for understanding the characteristics of the wider population, and the relevant sub-populations to be considered as receptors for the Human Health assessment. Information is supplied to justify the sensitivity categories assigned to the different receptor groups.
 - **Impact identification:** a description of the determinants of human health that are considered relevant to assess further in relation to the Scheme, supported by information explaining how the Scheme may affect them. This informs the conclusions drawn regarding the identification of a proportionate scope of impacts for inclusion within the Human Health assessment.
 - **Embedded mitigation:** mitigation measures incorporated within the Scheme that will serve to control the magnitude of Scheme impacts on determinants of human health are outlined.
 - **Summary of likely significant effects:** professional judgement and previous transferable project experience are used to present a list of the likely significant effects of the Scheme, during construction and operation. This informs the conclusions of the Scoping Assessment, setting out which Scheme impacts are proposed for progression to the next stage in the EIA process.
- 14.1.3 Volume II, Figure 14.1 and 14.2 support this assessment, illustrating the locations of human health receptors and assets, respectively.

14.2 Legislation, Policy and Guidance

- 14.2.1 The following legislation is relevant to the population and human health assessment:

- Countryside and Rights of Way Act 2000²⁹³
- Health and Social Care Act 2012²⁹⁴
- Equality Act 2010²⁹⁵

14.2.2 Relevant national and local policy is set out below:

- Overarching NPS for Energy (EN-1) (Department for Energy Security & Net Zero, 2025)¹³
- NPS for Renewable Energy Infrastructure (EN-3) (Department for Energy Security & Net Zero, 2025)¹⁴
- NPS for Electricity Networks Infrastructure (EN-5) (Department for Energy Security & Net Zero, January 2025)¹⁵
- NPPF (Ministry of Housing, Communities & Local Government, 2024)¹⁸
- South Worcestershire Development Plan (SWDP) (2016) (Under Review for Update)²⁴
- Stratford-on-Avon District Core Strategy 2011–2031²⁵
- Borough of Redditch Local Plan No.4 (2017)²³
- South Warwickshire Local Plan (2025)²⁶ (SWLP)
- South Warwickshire Local Plan Preferred Options (Regulation 18) Consultation (2025)²⁶

14.2.3 The following guidance documents have informed this Scoping assessment:

- ISEP: Effective Scoping of Human Health in EIA 2022²⁹⁶
- ISEP: Determining Significance for Human Health in EIA 2022²⁹⁷
- Highways England et al: DMRB LA112 – Population and Human Health Assessment²⁹⁸
- PINS (2024) NSIPs: Technical Advice for Scoping Solar Development³²

²⁹³ Countryside and Rights of Way Act 2000. Available at: <https://www.legislation.gov.uk/ukpga/2000/37/contents>

²⁹⁴ Health and Social Care Act 2012. Available at:

<https://www.legislation.gov.uk/ukpga/2012/7/contents>

²⁹⁵ Equality Act 2010. Available at: <https://www.legislation.gov.uk/ukpga/2010/15/contents>

²⁹⁶ ISEP (2022) Guide to Determining Significance for Human Health in Environmental Impact Assessment

²⁹⁷ Pyper, R., Waples, H., Beard, C., Barratt, T., Hardy, K., Turton, P., Netherton, A., McDonald, J., Buroni, A., Bhatt, A., Phelan, E., Scott, I., Fisher, T., Christian, G., Ekermawi, R., Devine, K., McClenaghan, R., Fenech, B., Dunne, A., Hodgson, G., Purdy, J., Cave, B. (2022) IEMA Guide: Determining Significance for Human Health in Environmental Impact Assessment.

²⁹⁸ Highways England, Transport Scotland, Welsh Government, Department for Infrastructure (2020) DMRB LA 112 Population and human health. Available at: <https://www.standardsforhighways.co.uk/search/1e13d6ac-755e-4d60-9735-f976bf64580a>

14.3 Baseline Environment

- 14.3.1 This EIA scoping chapter has been produced using desk-based data sources only.

Study Area

- 14.3.2 This section is informed by a general overview of the health of communities within the Middle layer Super Output Areas (MSOAs) listed below. Together, these comprise the Study Area. The information cited is drawn from statistics provided later in this section:
- Harvington, Offenham & Badsey;
 - Inkberrow & Flyford Flavell;
 - Alcester;
 - Bidford & Welford; and
 - Honeybourne & Littleton.
- 14.3.3 Collectively these are referred to as 'the MSOAs' and have been based on data available on the ONS website, drawn from Census 2021. The MSOAs are situated in WDC and SoADC. Volume II, Figure 18.1 shows the MSOA boundaries.
- 14.3.4 A very small part of the Scheme (associated with the CRC Search Area) extends into the neighbouring Hunt End & Feckenham MSOA, which falls within Redditch Borough. This overlap is minimal, temporary, and limited to construction of the CR. The ground above the cabling works will be reinstated to its previous condition following installation and is not anticipated to give rise to distinct population-level effects. For this reason, the Redditch MSOA has not been included in the assessment, with the minor interaction acknowledged but scoped out on the basis of negligible influence on local communities.

Receptor groups and sensitivity

- 14.3.5 The assessment of effects arising from the impacts of the Scheme on determinants of human health principally considers the wider population as the receptor group. Additional receptor groups are included in the assessment scope where the health profile shows that there are sensitive sub-populations with protected characteristics present. These groups form separate receptor groups, within the wider population, as they may experience the effects of impacts to determinants of human health in a different way.

Receptors: sensitive sub-populations

14.3.6 The demographic composition of the MSOAs indicates presence of the following sensitive sub-populations that need to be considered, in addition to the wider population of the MSOAs:

- **Families:** The MSOAs show a strong family presence, with percentages of single-family households ranging from 59.8% in Alcester to over 73% in Inkberrow & Flyford Flavell and Honeybourne & Littleton. This compares to the England average of 66.9%, indicating a predominantly family-oriented profile, though slightly less pronounced in Alcester. Children should be considered a sensitive sub-population, as those under 15 account for 13.9%–17.6% of Human Health Study Area residents, broadly in line with or slightly below the national average of 17.4%
- **People who are mentally or physically disadvantaged:** Disability prevalence (as defined by the Equality Act) ranges from 14.8% to 16% across the MSOAs, slightly below the national average of 17.7% but still representing a significant minority. Self-reported health is generally better than national figures, with 50%–52.5% of residents reporting 'very good' health compared to 47.5% nationally. Given their potential vulnerability to changes in access, amenity, and services, differential effects on this sub-population should be scoped into the assessment.
- **People who are materially disadvantaged:** Levels of material deprivation are slightly lower than the national average; however, between 43.4% and 50.6% of households in the MSOAs experience at least one dimension of deprivation, compared to 51.6% nationally. While overall economic hardship is less prevalent, a significant proportion of households still face deprivation, warranting their inclusion as a sensitive sub-population in the assessment.
- **Elderly populations:** Older residents represent a significant proportion of the Study Area demographic, with 22.4%–30% of the population aged 65 or over, well above the England average of 18.4%. Inkberrow & Flyford Flavell and Alcester have the highest proportions (30% and 29.4%), indicating the potential for the wider population to include segments with heightened sensitivity to changes that could affect older populations, particularly in relation to healthcare access and mobility infrastructure.

- 14.3.7 In addition to the receptor groups identified above, it is acknowledged that individuals with other protected characteristics (for example, ethnicity, sex or religion) will be present within the wider population of the Study Area. However, these groups have not been scoped in as separate human health receptors. This is not due to their presence or absence, but reflects professional judgement that, given the nature of the Scheme and the determinants of human health being considered for scoping into the assessment, it is unlikely that differential effects would arise for these groups compared with the wider population. However, the DCO application will be accompanied by an Equality Impact Assessment (EQIA), which will review this position and identify whether any protected characteristic groups may be disproportionately affected, including the presence of any particularly sensitive receptors (for example, care homes or other facilities serving specific groups). Should the EQIA identify any such receptors or potential differential effects, these will be addressed appropriately within the human health assessment.
- 14.3.8 Table 14-1 sets out the sensitivity of each receptor group to changes to the identified determinants of human health. This is defined at the scoping stage, as it is a key input to the likelihood of significant effects arising, on a differential basis between receptors.

Table 14-1 Sensitivity of Human Health receptors (excluding geographic sub-populations)

Determinant of Human Health	Sensitivity of Human Health receptor to change			
	Wider population	Age (families with children and elderly persons)	Materially disadvantaged	Mentally and or/physically disadvantaged
Access to community, recreational and educational facilities	Medium	Medium	Medium	Medium
Access to green space and open space	Medium	High	Medium	High
Access to healthcare facilities	Medium	High	High	High
Characteristics of the transport network	Medium	Medium	High	Medium
Air quality	Low	Medium	Medium	Medium
Noise pollution and vibration	Low	Low	Low	Low
Pollution of soils and water	Low	Low	Low	Low
Landscape amenity	High	High	High	High
Transport user safety	Low	Medium	Low	Medium
Employment and income	Low	Low	Medium	Low

Receptors: residential sub-populations

- 14.3.9 The professional experience gained through the application of the ISEP human health assessment methodology has also identified value in considering the closest residential communities to any given proposed development as specific sub-populations, to be assessed as receptors. This is because such communities can often experience more acute impacts, particularly during the construction phase.
- 14.3.10 Based on the Site, it is expected that the following residential sub-communities would benefit from specific consideration within the human health assessment as receptors. Volume II, Figure 18.2 shows the residential clusters.
- 14.3.11 Each of these residential sub-communities is assigned the level of sensitivity to change based on the 'community sensitivity' bands using the criteria established in DMRB LA 112. The sensitivity to change is essential to understand at scoping, as this determines how differential effects may be experienced, compared to the wider population. At this stage, high sensitivity is assigned where communities are small in scale, located in closest proximity to anticipated construction activities, and therefore have a greater potential to experience noticeable, short-term changes in amenity. This reflects the DMRB LA 112 definition of communities with high susceptibility to change. Medium sensitivity is applied where communities are further from the construction footprint, are partially screened, or are larger settlements where baseline activity levels are higher, meaning changes are less likely to be perceived at a community-wide level. The detailed criteria used to derive these preliminary sensitivity ratings are provided in Volume III, Appendix A14.1. These sensitivity classifications will be reviewed and confirmed in the ES once detailed construction information, including traffic routing and activity profiles, is available.
- High sensitivity to change:
 - Residents of properties at Dunnington;
 - Residents of properties at Weethley;
 - Residents of properties at Wood Bevington;
 - Residents of properties at Cleeve Prior;
 - Residents of properties at Bickmarsh;
 - Residents of properties at Broom; and
 - Residents of properties at Salford Priors.
 - Medium sensitivity to change:
 - Residents of properties at Wixford;
 - Residents of properties at Bidford-on-Avon; and

- Residents of properties at South Littleton.

Baseline Factors

- 14.3.12 The potential impacts of the Scheme will be considered in terms of changes to the following determinants of health, which have been derived from amalgamating the ISEP guidance and DMRB LA112 standard:
- Access to community, recreational and educational facilities;
 - Access to green space and open space;
 - Access to healthcare facilities;
 - Characteristics of the transport network;
 - Air quality;
 - Noise pollution and vibration;
 - Pollution of soils and water;
 - Landscape amenity;
 - Transport user safety; and
 - Employment and income.
- 14.3.13 This sub-section provides an overview of the current baseline conditions relevant to the determinants of human health that may experience impacts due to the Scheme. It is supported by Volume II, Figure 18.3.
- 14.3.14 There is an assumption that construction traffic will use the A46 as it is on the strategic road network and central to the development parcels. Further assumptions have been made about appropriate routes to development parcels at this stage to inform the scoping (refer to Chapter 13 Transport and Access); however, there is uncertainty here, which influences a precautionary approach to scoping.

Access to community, recreational and educational facilities

- 14.3.15 There are limited community assets within the Study Area. The community assets present comprise religious facilities, village halls/community centres and primary educational facilities. Public transport in the Study Area is limited, with irregular bus services operating across the rural parts. Due to the indirect nature of routes, there is likely to be a strong reliance on private vehicles for accessing community, recreational, and educational facilities, noting that education at secondary or above is largely outside the communities of the Study Area.

14.3.16 Facilities have been identified through baseline research, focusing on those considered likely to be used by residents within the relevant Study Area, supporting human health by serving as community venues, recreational spaces, or educational providers. These are listed below, with further information to be gathered at the next stage of the EIA:

- Wixford Village Hall;
- Broom Village Hall;
- Cleeve Prior War Memorial Village Hall;
- Littleton Scout Hut (South Littleton);
- St James Church of England (South Littleton);
- Dunnington Baptist Church;
- St Milburga C Of E Church (Wixford);
- St Andrew's Church (Cleeve Prior);
- Church of St Michael the Archangel (South Littleton);
- Friends Littleton Mission (South Littleton);
- Dunnington CofE Primary School;
- Salford Priors CofE Academy;
- Bidford Football Club;
- Bidford-on-Avon Tennis Club; and
- Bidford Gliding Club.

Access to green space and open space

14.3.17 The Study Area is situated within a predominantly open and green landscape, much of which is accessible via a network of footpaths and bridleways that connect surrounding villages. A large portion of this green space consists of agricultural land, which is also accessible through parts of the footpath network.

14.3.18 Connections between villages and towns are well supported by this footpath network, providing access to open spaces. In addition to the local footpath and bridleway network that connects the surrounding villages, the Study Area also contains three regionally / nationally promoted longer-distance recreational trails. These comprise the Millennium Way, the Shakespeare's Avon Way and the Heart of England Way. These routes cross through parts of the Site and provide recreational access to wider areas of open countryside. As such, the network is valued at both the local and regional levels, for recreational use. In addition to these routes, each village contains designated recreational green spaces for residents.

- 14.3.19 Bridleway provision within the Study Area is limited, with only a few routes running along the development parcel boundaries within the Site. This restricted network limits opportunities for cyclists and horse riders to travel off-road within the Study Area. However, the most southern part of the Scheme lies close to NCN Route 41, which runs between Honeybourne and Long Marston. No other NCN or regional cycle routes are present within or adjacent to the Study Area.
- 14.3.20 The following green space and open space assets have been identified below, due to their likely role in supporting human health through recreation, physical activity and social interaction. Further information relating to usage will be sought at the next stage of the EIA process:
- Ralphps Wood (Country Park);
 - Guntrip-Hook Waterfall;
 - Becks Wood;
 - Secret Garden;
 - The Big Meadow; and
 - Melski's Wood.

Access to healthcare facilities

- 14.3.21 Three healthcare facilities serve residents of the Study Area: Evesham Community Hospital, Merstow Green Medical Practice, and Alcester Health Centre. These facilities are situated in Evesham or Alcester, with none of the closest towns or villages to the Site having their own medical provision. Evesham Community Hospital is the only hospital within the Study Area and offers a broad range of services; however, for certain types of specialist care, residents must travel to Stratford-upon-Avon or Worcester.
- 14.3.22 Residents of rural and isolated settlements within the Study Area, such as Wheetley, Dunnington, Bickmarsh, and Bidford-on-Avon, are presumed likely to be heavily reliant on the road network to access healthcare services. Many are likely to use roads forming part of the assumed construction access route to reach medical facilities, although alternative routes are generally available.
- 14.3.23 Public transport is limited to local bus services, which are available in some villages within the Study Area, providing access to larger settlements for healthcare. However, there is likely a strong reliance on private vehicles, particularly among residents of more isolated areas. Those without access to a car may already experience severance from key healthcare services, as the majority of GP practices, hospitals, and dental services are concentrated in Evesham and Alcester, on the edge of the Study Area.

14.3.24 The following assets have been identified through the baseline research as potentially used by the Study Area residents, supporting human health:

- Evesham Community Hospital (Evesham);
- Merstow Green Medical Practice (Evesham);
- Alcester Health Centre (Alcester);
- Bidford Dental Practice (Bidford-on-Avon);
- Tile House Dental Practice (Alcester);
- Unique Smiles Dental Surgery (Alcester);
- Albert Road Dental Practice (Evesham);
- High Street Dental Practice (Evesham);
- Gentle Dental Care (Evesham);
- The Dental Practice, Evesham (Evesham); and
- Evesham Dental Health Team (Evesham).

Characteristics of the transport network

14.3.25 The Study Area is dissected by the A46, which is part of the strategic road network. This road is key to traffic movement within the Study Area. The A422 is located just north of Site 1, and the remaining roads are either B roads or unclassified. These road network characteristics are reflective of the rural nature of the Study Area.

14.3.26 The 564-series bus routes (564, 564A, 564B, 564D) operate between Evesham, Inkberrow and Pershore, passing through a network of small villages and providing important links for more rural properties. The 564A, for example, runs from Evesham Bus Station through locations such as Norton, Rous Lench and Inkberrow, before continuing toward Pershore. These services are limited, running Monday – Saturday once a day, connecting the settlements of the Study Area to Evesham, from where interchange is possible with the broader regional network, including additional 564 variants and other local services operating from Evesham Bus Station. Weethley and Wood Bevington are not directly served by any bus service.

14.3.27 The 247 and 247S routes, operated by Diamond Bus, form the main north–south public transport spine through the Study Area. The 247 connects Redditch – Alcester - Wixford - Bidford-on-Avon - Cleeve Prior - before reaching Evesham Bus Station. The 247S follows a similar alignment, also calling at Wixford and Bidford-on-Avon, providing additional school-day and afternoon connectivity. Through these routes, settlements such as Broom, Bidford-on-Avon, Wixford, Cleeve Prior, and South Littleton benefit from reliable links to both Alcester and Evesham, supporting access to secondary services, education, retail, and onward travel.

- 14.3.28 There are no passenger rail services available within the Study Area. Honeybourne Station is the closest station to the Scheme; and the closest London mainline railway station is at Evesham, which also connects to Oxford, Worcester, and Hereford.

Air quality

- 14.3.29 There are no AQMAs located within the Study Area. Further information is provided in the Air Quality section of this Report (Section 5.5 of Chapter 5).

Noise pollution and vibration

- 14.3.30 The Noise chapter reports that the A46 is designated as a Noise Important Area (NIA) within the Study Area and a section runs through the centre of the Site. Defra's strategic noise mapping²⁹⁹ indicates that daytime road traffic noise levels along the A46 typically range between 55 dB and 70 dB LAeq,18h, with some sections exceeding 70 dB, reflecting significant exposure for receptors close to the carriageway. These levels are consistent with high traffic volumes and are above thresholds commonly associated with potential annoyance and health impacts. Further information is provided in the Noise and Vibration Chapter of this report (Chapter 11).

Pollution of soils and water

- 14.3.31 There are no operational landfill sites in the Study Area. The closest site is Hill and Moor Landfill, which is 2.9 kilometres South-West of the closest part of the Scheme. In addition to the operational landfill there are also records of historic landfill sites and former quarry voids within the wider Study Area. These sites are no longer active, and any potential legacy contamination risks associated with them will be assessed through the Ground Conditions and Water Environment topics. On the basis of current information, no active pollutant linkages have been identified that would be expected to give rise to distinct human health receptor effects beyond those considered through these specialist assessments.
- 14.3.32 The River Avon, a statutory Main River and major waterway, runs through the Study Area. The river runs between Sites 2 and 3 of the Scheme. There are many tributaries that feed into the Avon, the most significant of these being the River Arrow. Their confluence is South-West of Bidford-on-Avon. The Avon has a poor rating for Phosphates and fails on priority hazardous substances, although in most other areas it receives a rating of good.

²⁹⁹ Defra, UK Noise (2025) Road Noise LAeq16 – England. Available at: <https://environment.data.gov.uk/explore/b9c6bf30-a02d-4378-94a0-2982de1bef86>

- 14.3.33 Historically, the surrounding land has been used for agricultural purposes. Archival imagery from 1946 confirms the presence of an arable landscape, and more recent aerial imagery and site mapping indicate that this agricultural land use has been maintained to the present day. The Study Area therefore reflects a long-standing and continuing farming landscape.³⁰⁰.

Landscape amenity

- 14.3.34 The Study Area lies within the rural landscape of the Severn Ridges Local Character Area (LCA), on the eastern side of the Severn and Avon Vales National Landscape Character Area 106³⁰¹. This LCA is characterised by a gently undulating landform with a strong agricultural pattern of medium to large-scale fields, predominantly arable with some pasture. Fields are typically enclosed by hedgerows, which vary in condition, and occasional hedgerow trees provide intermittent vertical structure. The landscape includes scattered farmsteads and small villages, often with historic cores and traditional building materials such as red brick and local stone. Further information is provided in the Landscape and Visual Chapter of this report (Chapter 12).

Transport user safety

- 14.3.35 Data suggests that on roads which could be reasonably assumed as access routes, there have been 47 slight, 11 serious and 4 fatal incidents between 2020 – 2024³⁰². The fatal and serious accidents illustrate the additional risk of driving in villages and country roads. This does include the A46, which holds over half of the incidents, at junctions.
- 14.3.36 Accident data for the transport network will be assessed within the Transport and Access chapter, which will identify any changes in road safety risk associated with Scheme construction traffic. From a human health perspective, this chapter will not duplicate that analysis, but will instead consider whether any transport-related changes identified, including increased collision risk, perceived safety concerns or effects on vulnerable users, could influence relevant health determinants. Any findings from the TA that have the potential to give rise to health-related

³⁰⁰ Historic England (1946). Aerial Photo - raf_106g_uk_1698_v_5354. Available at: https://historicengland.org.uk/images-books/archive/collections/aerial-photos/record/raf_106g_uk_1698_v_5354

³⁰¹ Natural England (2025) Severn and Avon Vales – Key Characteristics. Available at: <https://nationalcharacterareas.co.uk/severn-and-avon-vales/key-characteristics/>

³⁰² Crashmap.co.uk (2023) CrashMap Data: Great Britain 1999 – 2023. Available at: <https://www.crashmap.co.uk/Search>

effects will be cross-referenced and incorporated at the ES stage.

Employment and income

- 14.3.37 The Socio-Economic section (Section 5.4) provides the baseline position for this determinant of human health.
- 14.3.38 The Study Area sits within two economically diverse districts: Wychavon and Stratford-on-Avon; each characterised by a broad mix of sectors. In Wychavon³⁰³, key industries include wholesale (15.5%), property (8.6%), education (7.8%), health (7.8%), public administration and defence (6.9%), as well as manufacturing, retail, hospitality, transport and storage. Evesham specifically also retains a strong horticultural and agricultural base alongside manufacturing, retail, education and healthcare employment, reflecting the town's historic role within the Vale of Evesham's food-growing economy.
- 14.3.39 The Study Area also extends into Stratford-on-Avon District³⁰⁴, which supports a substantial workforce of 99,504 employees and has experienced employment growth of 5.07% in recent years. The district's economy is underpinned by a diverse mix of sectors, with professional, scientific and technical activities forming the largest share at 17.28%, followed closely by administrative and support service activities at 16.75%, and wholesale and retail trade representing 10.76% of local employment. In addition to these established sectors, Stratford-on-Avon shows emerging strengths in technology-oriented industries, including software-as-a-service (SaaS) and analytics, reflecting a dynamic and increasingly innovation-focused economic base.
- 14.3.40 From a human health perspective, employment and income are considered not only as indicators of economic performance but as key determinants of wellbeing. While the socioeconomic assessment will quantify employment levels, sectoral composition and income distribution, the Human Health lens interprets these factors in terms of their implications for physical and mental health. Secure, good-quality employment influences health by providing financial stability, reducing stress, and supporting access to healthy lifestyles, including adequate housing, nutritious food, and opportunities for social participation.

³⁰³ Worcestershire County Council (2024) Economic Profile. Available at: <https://www.worcestershire.gov.uk/sites/default/files/2024-11/Wychavon%202024.pdf>

³⁰⁴ UK Data (2022) Analysis Report: Economic and Business Activity in Stratford-on-Avon. Available at: <https://ukdata.com/reports/stratford-on-avon/>

14.4 Assessment Methodology

- 14.4.1 The Human Health assessment will be driven by the ISEP guidance, supplemented by elements of the DMRB LA112 standard in relation to the definition of the Study Area and baseline factors (as noted in Section 18.3).
- 14.4.2 The nature and magnitude of impacts to determinants of human health is informed by the findings reported in technical chapters of the EIA Scoping Report that relate to determinants of human health. For example, a change in air quality can cause a change in respiratory health; and noise or vibration can cause a change in social or mental wellbeing, and this can have impacts for the people who are more vulnerable or susceptible in the Study Area. The assessment therefore considers the issue of attribution i.e. how the health outcomes in the current and future population could be affected (positively or negatively) due to impacts on determinants of human health caused by the Scheme. An in-combination perspective is taken when considering the significance of effects, to seek to reflect the lived experience of the relevant human health receptor groups to the impacts from the Scheme.
- 14.4.3 Impacts on human health can be influenced (both negatively and positively) individually or cumulatively by a range of wider health determinants and are further modified by local community circumstance such as living conditions and existing health profiles. Therefore, a human health assessment also considers the distribution of any potential impacts of the Scheme within the affected population, including potential impacts on the more vulnerable, sensitive, or disadvantaged population groups or individuals. The location and presence of these vulnerable groups within the Study Area and their profiles are outlined in Section 18.3 and will be developed further at the next stage of the EIA process.
- 14.4.4 The method of assessment for Human Health at the next stage in the EIA process will use the following sequential steps:
- Confirm the Study Area – the Study Area relevant to human health, based on what is known at this scoping stage, is identified and summarised (see Section 14.3).
 - Confirm/refine the human health receptors – the receptors that have the potential to be affected by the Scheme (both positively and negatively) are identified. This comprises the wider population of the relevant Study Area, supplemented by the identification (using health profiling and demographic data) of sensitive/vulnerable groups that could be more susceptible to effects arising from impacts of the Scheme (see Section 14.3).

- Identify the sensitivity of receptors – the sensitivity of the receptors to changes to the wider health determinants will be described, based on the criteria set out in the latest ISEP guidance.
- Identify the wider determinants of health – the wider determinants of health (i.e. a diverse range of social, economic and environmental factors that influence people's mental and physical health). considered relevant to the Scheme will be identified and described.
- Determine the impact of the Scheme on health determinants - taking account of what is known about how the Scheme will change the baseline health determinants, assign impact magnitude based on the criteria set out in Volume III, Appendix A14.1. Assessments from other environmental chapters within the ES will inform the assessment.
- Identify significant effects – significant effects are identified by assessing the predicted interactions between the identified receptors and impacts. Where interactions exist, an effect will occur and its significance is determined by combining the receptor sensitivity with the impact magnitude to provide an overall significance rating.

14.4.5 Further details of the application of the methodology, based on the sequence above, are provided in Volume III, Appendix A14.1.

14.4.6 The ES Chapter for Human Health will also assess and report on cumulative effects that may arise, in topic, from intra-Scheme or inter-project impacts. This section of the ES chapter will then also inform the standalone Cumulative Effects Assessment (CEA) chapter proposed for inclusion within the ES.

14.5 Embedded Mitigation

14.5.1 The Scoping Assessment conclusions have been drawn on the assumption that the embedded mitigation set out in this sub-section will be applied, forming part of the Scheme.

Construction and decommissioning phases

Construction Phase

14.5.2 The following mitigation measures will be applied, to reduce the magnitude of impacts on determinants of human health during the construction phase:

- A series of control measures and commitments within an oCEMP. This will be submitted with the DCO application, with a dCEMP to be a Requirement of the DCO, for preparation and implementation prior

to construction. From the perspective of the Human Health assessment, this is assumed to include:

- Preservation of vehicular access to all relevant assets, including private residences, community assets (e.g. schools, healthcare facilities and community venues), development land and businesses, green and open spaces. This should be supported by clear signage, advanced notice of closures, and alternative routing where necessary.
- Traffic management arrangements (within a CTMP) for non-motorised users, that afford suitable width and unimpeded/ramped access for walkers, horse riders, and cyclists of all abilities, including those using mobility aids or pushchairs. This should be supported by clear signage and wayfinding for temporary routes.
- Traffic management proposals that accommodate continued provision of public transport. Traffic management should ensure the safe passage of buses/coaches along suitable routes, supported by temporary bus stop provision where existing stops are temporarily inaccessible. This should be supported by advance notice of changes to locations and timetables and clear signage.
- Appointment by the Applicant and/or Principal Contractor(s) of a Public/Community Liaison Officer, who will be responsible for pro-actively providing information to and communicating with residents and stakeholders, managing interactions including complaints and feedback between the public, stakeholders and the construction process and coordinating responses to community concerns, particularly around severance and amenity.
- Development and implementation of a suitably tailored Community Engagement Plan (CEP) or similar, via a Public/Community Liaison Officer. This should be reflective of the community characteristics, including any specific linguistic or specialist communication needs and be tailored to the area's demographics. It should include arrangements and commitments for the provision of advance information on the construction programme to enable affected persons to plan ahead, as well as procedures and mechanisms for managing complaints and triggering corrective actions, should the need arise. The plan should be in accessible formats and utilise inclusive communication strategies.
- Pollution control measures including site waste arisings, dust generation, noise and vibration, contamination/spill risk and

avoidance of surface water flooding/ponding. These should be established in targeted management plans.

- Targeted management plans will be prepared. This will include the submission of an oPRoWMP, with a dPRoWMP to be a Requirement of the DCO. ERP will also be prepared as part of the BSMP, alongside the LEMP.
- Construction phase planning, with the intention of delivering efficient construction activities that minimise the duration of temporary disturbance impacts.
- Landscape measures for construction works, which seek to retain as much mature vegetation as practicable, reinstate visual screening as early as practicable, accelerate the establishment of new landscaping, through the earliest practicable formation of earthworks and introduction of new planting, to accelerate landscape recovery.
- Transport user safety measures should be incorporated into the CTMP or the PRoWMP to mitigate risks for walkers, cyclists and horse-riders on minor roads and bridleways, particularly where there is an existing collision history. This would include practical measures such as improved sightlines at haul-route junctions, temporary visibility trimming, low-speed controls for HGVs, advance warning signage for Walking Cycling Horse riding (WCH) priority areas, and clearly agreed crossing-point protocols between site traffic and public users.

Decommissioning Phase

- 14.5.3 During the decommissioning phase, the likely impacts are considered largely similar to those associated with the construction phase. Mitigation measures will therefore also be comparable, tailored to the decommissioning phase.
- 14.5.4 Decommissioning mitigation measures will be presented in the Decommissioning Environmental Management Plan (DEMP), which will be secured via a DCO Requirement.

Operational Phase

- 14.5.5 Embedded mitigation for the operational phase includes:
- Monitoring and maintenance of environmental design features, including; Landscape planting and screening to preserve rural character and visual amenity, to be secured in the LEMP;
 - Maintaining PRoW, to be secured in the PRoWMP;

- Communication and engagement activities will be carried out at key points during the operational phase, specifically when major works associated with the Scheme are planned (such as the programmed replacement of panels or batteries). These activities will ensure relevant stakeholders, including users of WCH networks, receive timely information to support adaptation to any temporary changes. Routine operation will not require continuous engagement, as Scheme-related impacts are not expected outside of these scheduled works.

14.6 Likely Significant Effects

- 14.6.1 The Human Health assessment is proposed to be undertaken in accordance with the latest ISEP guidance. Table 7.4 of that guidance indicates the way in which changes to determinants in health could lead to effects on the wider population and sub-populations within it, in the context of public health, providing qualitative criteria to guide conclusions regarding significance (refer to Appendix A14.1). This guidance is used to direct the scoping of the potential impacts of the Scheme that are proposed for more detailed assessment at the next stage of the EIA process.

Construction and Decommissioning phase impacts

Construction

- 14.6.2 Table 14-2 sets out the construction impacts of the Scheme that are considered likely to lead to changes in determinants of human health. The rationale provides a brief explanation of how changes in determinants of human health may then lead to effects for human health receptors that could potentially be significant, with examples to aid understanding of the pathways that will be considered.
- 14.6.3 Health impacts from construction that are assessed elsewhere in this report (air quality, noise, exposure to pollutants) are not considered further in this human health assessment except where there could be an in - combination impact resulting in reduced amenity.

Decommissioning

- 14.6.4 The impacts anticipated to occur during the decommissioning phase are anticipated to be largely similar in type, and typically lower in magnitude, than the construction phase impacts. On this basis, the impacts in Table 14-2 are considered to include likely decommissioning phase impacts.

Table 14-2 Summary of likely impacts of the Scheme on determinants of human health – construction phase

Impact type	Determinants of Human Health	Rationale
Introduction of construction traffic movements (across the Study Area network)	▪ Access to community, recreational and educational facilities ▪ Access to green space and open space ▪ Access to healthcare facilities ▪ Characteristics of the transport network ▪ Transport user safety	Construction of the Scheme will alter traffic patterns across the Study Area, influencing overall traffic levels as well as the distribution and relative proportion of Heavy-Duty Vehicles (HDVs) and Light-Duty Vehicles (LDVs) within traffic flows. These changes will occur on the A46 and other routes that serve rural communities, including roads used by local bus services and active travel users, and will be driven by the movement of construction materials, plant, machinery, and the daily travel of construction workers. Within the Study Area, which includes rural settlements with limited public transport provision and a high proportion of older residents, altered traffic patterns may influence access to healthcare, community, educational and recreational services. Healthcare services for the Study Area are concentrated in Evesham and Alcester, as there are no hospitals or GP practices within the immediate rural settlements. Evesham Community Hospital and Alcester Health Centre provide the nearest primary and secondary care, with additional GP and dental services located in Evesham. Disruption to key routes during construction could affect timely access to care, particularly for older adults and those with chronic conditions, given the area's high proportion of residents aged 65+. Community and recreational facilities within the Human Health Study Area include village halls, religious venues, and educational facilities including Dunnington CoFE Primary School and Salford Priors CoFE Academy. Recreational assets include a range of sporting venues, with outdoor courts and pitches. These facilities support social cohesion, physical activity, and mental wellbeing for residents of the Human Health Study Area. Construction activities may

Impact type	Determinants of Human Health	Rationale
		temporarily reduce access or increase travel times to these facilities, particularly noticeable for families and children who are likely to rely on them almost daily for education and informal recreation. Increased construction traffic can create higher risk of fatalities, particularly on minor roads and routes used by pedestrians, cyclists, and equestrians. Existing collision data in the Study Area (47 slight, 11 serious, and 4 fatal incidents between 2019–2023) already indicates baseline safety concerns for vulnerable road users. The introduction of higher proportions of HDVs may further exacerbate these risks.
Changes in amenity (in-combination)	▪ Access to green space and open space ▪ Air quality ▪ Noise pollution and vibration ▪ Landscape amenity ▪ Employment and income	For the purposes of the human health assessment, change amenity is an in-combination impact derived from contributing impacts of increased noise, decreased air quality, dust generation, visual intrusion and general disturbance (e.g. from changes in activity levels/ traffic). Most commonly, this combination of impacts is associated with construction compound and work site locations but can also be linked to specific construction and operational phase activities. The Scheme is set within a rural landscape and the wider Study Area is actively used by the local community for walking, recreation, and informal exercise. The presence of woodland and open green spaces contributes to the area's visual amenity and supports mental wellbeing, particularly for residents who rely on access to nature for relaxation and physical activity. These characteristics are also key contributing factors in the appeal of the Study Area and wider area as a destination for day visitors and tourism, which supports a range of local businesses. Cumulative and persistent exposure to construction-related noise, dust, lighting and general activity may influence overall wellbeing. Sustained periods of environmental disturbance can reduce the restorative quality of the local area and contribute to sleep disruption, heightened stress and impacts on mental

Impact type	Determinants of Human Health	Rationale
		health. Changes to the character and tranquillity of outdoor spaces may also discourage walking, cycling and other informal recreational activities, leading to reduced physical activity and fewer opportunities for social interaction. In combination, these changes have the potential to increase levels of stress or community anxiety during the construction period, particularly among those who are more sensitive to changes in their environment. There is the potential for differential effects to be experienced by more sensitive receptor groups such as older adults, families and persons who are mentally or physically disadvantaged.
Uncertainty	▪ Employment and income ▪ Landscape amenity	Once information becomes publicly available, the prospect of major construction projects typically generates public interest and speculation about what will be happening, who and how people will be affected and what the new development will change. This curiosity, when met with uncertainty, can generate community anxiety. Community anxiety is common where there is a great deal of subjectivity regarding how major construction projects may impact established community characteristics and quality of life. Uncertainty can also have adverse consequences for existing businesses, impeding their ability to accurately forward plan, therefore introducing stressors. The DCO application and examination processes are not widely understood and may contribute to the sense of uncertainty; however, the contribution of the process itself to the impact is beyond the control of the Applicant. The assessment will reflect this, focusing only on uncertainty relating to the Scheme.
Land take	▪ Access to green space and open space ▪ Characteristics of the transport network	The Scheme will require parcels of land, both short term and for the lifetime of the Scheme, within the Human Health Study Area. This includes land needed for construction compounds and access routes to development parcels within the

Impact type	Determinants of Human Health	Rationale
	▪ Pollution of soils and water ▪ Landscape amenity ▪ Employment and income	Site, potentially affecting areas currently used for agricultural activities, walking, cycling, and horse riding (WCH). At this scoping stage, it is anticipated that the Scheme will involve some temporary changes of use of land that forms part of the footpath and bridleway network, which supports physical activity and mental wellbeing. Diversions of this network and temporary changes in the ability to use these assets may reduce opportunities for exercise, recreation and contact with nature. The transition from existing land use into construction activities will impact landscape amenity, delivering visible changes in the Study Area. Temporary and or permanent restrictions on access to green and open spaces may reduce the usability of assets. Reductions in opportunities for or characteristics of outdoor recreation could adversely affect mental health, particularly for sensitive sub-populations such as older residents and families who rely on these spaces for informal activity and wellbeing.
Changes in economic conditions	▪ Employment and income	The Socio-Economic chapter places emphasis on quantitative measures of economic conditions. At this scoping stage, it reports that any resulting effects on existing businesses are expected to be limited, temporary and not significant. The human health assessment approaches this from a different perspective, recognising that business decisions, forward planning and operational success can also be influenced by perceptions. The assessment also takes into account that the link between secure and fulfilling employment and better health outcomes is documented in research and academic literature. The Scheme is located in a predominantly rural setting that includes agricultural activities, small businesses and community enterprises. These businesses may be vulnerable to both perceived or actual disruption of economic conditions

Impact type	Determinants of Human Health	Rationale
		during construction due to in-combination impacts from temporary land take, reduced access, changes in amenity and uncertainty, resulting in stress for business owners. Conversely, the Scheme may also generate jobs and support supply chain businesses, which may deliver positive health effects through improved income and job security.
Changes in WCH access (across the Study Area)	▪ Access to community, recreational and educational facilities ▪ Access to green space and open space ▪ Transport user safety	Construction activities may temporarily restrict access, introduce diversions that alter journey length or reduce the quality of experience across the WCH network and within the open spaces, affecting opportunities for recreation and contact with nature. It is possible that some changes in the WCH network could contribute to changes in Active Travel behaviours, including purposeful trips such as walking to school or work. Any reductions in participation could have health implications, potentially affecting sub-populations on a differential basis from the wider population.

Human Health assessment – operational phase

- 14.6.5 Once the Scheme is operational, there will be no further uncertainty or land take. Traffic resulting from the Scheme in operation will be negligible, comprising infrequent maintenance vehicles. During the lifetime of the Scheme, programmed replacement of panels and batteries may result in short periods of construction-type activity, however, these events will be infrequent, temporary and managed using the same embedded measures as construction. These impact types are scoped out of the operational assessment.
- 14.6.6 Table 14-3 sets out the impacts to determinants of human health (which could lead to potential effects for human health receptors) that have been identified for the operational phase, based on the current level of baseline and Scheme information

Table 14-3 Summary of likely impacts of the Scheme on determinants of human health – operational phase

Impact type	Determinants of Human Health	Rationale
Evolving changes in amenity (in-combination)	- Access to green space and open space - Air quality - Noise pollution and vibration - Landscape and visual quality	As noted above, for the purposes of the human health assessment, amenity is considered to be an in-combination impact. It can be influenced by changes in noise, air quality, visual appearance and general characteristics of a particular location (e.g. from changes in activity levels/ traffic). In the operational phase, this combination of impacts is most likely to be experienced in the vicinity of the Scheme, where there may be long-term changes to the landscape, maturing vegetation cover, visual appearance, traffic distribution and WCH networks. These changes will be reversible, enduring only during operation. The Study Area's rural character and open views contribute to mental wellbeing. Changes as a result of the operation of the Scheme may affect how residents experience their environment. The impacts contributing to in-combination amenity impacts are expected to vary across the Study Area, with the potential for a range of adverse and beneficial effects.
Evolving changes in economic conditions	Employment and income	Given the small operational workforce and the likelihood that some roles may be filled by non-local personnel, the Scheme is expected to generate only limited direct economic benefits. Some minor positive effects may arise through operational expenditure and supply-chain activity, although these are not anticipated to materially alter local economic conditions in what is predominantly a rural area with modest commercial activity. Changes to agricultural practices, which represent a significant local sector, could have adverse effects, noting that solar PV areas will be designed to enable grazing of livestock and that landscaping / maintenance contracts will be

Impact type	Determinants of Human Health	Rationale
		available to eligible landowners. The Scheme will also provide participating landowners with an additional, stable form of income through land leasing arrangements. It may take time for pre-existing businesses to adapt to changes in economic conditions once the Scheme is operational. These impacts will be scoped in to ensure the indirect health effects are fully assessed.
Permanent changes to the WCH network	▪ Access to community, recreational and educational facilities ▪ Access to green space and open space ▪ Transport user safety	The baseline analysis has highlighted a number of WCH routes, principally recreational in nature, that may experience long term (reversible) alterations as part of the Scheme. In particular the footpath and bridleway network supports physical activity and mental wellbeing. Alterations may affect route connectivity, length (potential for positive and negative impacts, including through the potential for permissive paths to be introduced if appropriate) and user experience. The operational assessment will consider the new usage patterns, connectivity and the user experience of the amended network on the basis that WCH networks are important in supporting healthy lifestyles. It is likely that there will be a range of beneficial and adverse effects.

14.7 Assumptions and Limitations

14.7.1 This Scoping assessment has been informed by the following assumptions and limitations:

- Baseline information has been gathered from desk based sources. These are necessarily a snapshot in time and accuracy of information published online cannot be guaranteed. The next stage in the EIA process will be supported by site verification, if necessary.
- Access to the Site is a key factor in determining potential human health impacts. As the final access route has not yet been confirmed, a reasonable 'assumed access route' is defined for the purposes of scoping potential effects (see Chapter 10 Transport and Access). The A46 has been provided as the closest known access point, with reasonable assumptions of possible routes then provided for each Site. This approach ensures that all relevant impacts are captured and will be reviewed and refined as part of the full assessment. This precautionary approach ensures that all settlements between the A46 and the site are given additional consideration when sensitivity to change is determined.
- At this scoping stage, middle-layer super output areas (MSOA) from the Census 2021 have been selected to provide a broad basis for scoping and may be reduced or refined as the EIA progresses. The selection of MSOAs is informed by the location of the Scheme.
- Effects within the Human Health assessment are to be derived from understanding the magnitude of changes in wider health determinants, as defined in Section 18.3. The appreciation of where impacts on determinants of human health could occur is informed by the other relevant EIA topic assessments. Consequently, the Human Health assessment is dependent upon the findings of contributing topic assessments. Principally, these comprise Landscape and Visual, Soils and Agriculture, Transport and Access, and Noise and Vibration.

14.8 Conclusions on Scoping

14.8.1 It is proposed to undertake a specialist human health assessment and report the findings in a dedicated Human Health chapter within the ES. The proposed scope of the human health assessment is set out in Table 14-4 for construction phase effects, which are considered largely similar to decommissioning effects; and Table 14-5 for operational phase effects.

- 14.8.2 Where impacts relating to specific determinants of health have been scoped out for a particular receptor, justification is provided in Appendix A14.1.

Table 14-4 Summary of Human Health assessment scope – construction phase*

*The construction phase impacts are considered largely similar to the decommissioning phase impacts and of a lower magnitude in most cases. Decommissioning will also include reversing certain impacts associated with the Scheme, to reinstate pre-existing land uses. On this basis, the decommissioning phase impacts are not drawn out separately, since they would not materially alter the scoping for this topic.

Impact type	Relevant determinant(s) of human health	Wider Population	Age (families with children and adolescents; and older persons)	Mentally and/ or physically disadvantaged	Materially disadvantaged	Residential sub-populations
Introduction of construction traffic movements (across the Study Area network)	Access to community, recreational and educational facilities	Scoped in	Scoped in	Scoped in	Scoped in	Scoped in
	Access to green space and open space	Scoped out	Scoped in	Scoped in	Scoped in	Scoped in
	Access to healthcare facilities	Scoped out	Scoped in	Scoped in	Scoped in	Scoped in
	Characteristics of the transport network	Scoped in	Scoped in	Scoped in	Scoped in	Scoped in
	Transport user safety	Scoped in	Scoped in	Scoped in	Scoped in	Scoped in
Changes in amenity* (in-combination)	Access to green space and open space	Scoped in	Scoped in	Scoped in	Scoped in	Scoped in
	Air quality	Scoped out	Scoped in	Scoped in	Scoped out	Scoped in

Impact type	Relevant determinant(s) of human health	Wider Population	Age (families with children and adolescents; and older persons)	Mentally and/ or physically disadvantaged	Materially disadvantaged	Residential sub-populations
	Noise pollution and vibration	Scoped out	Scoped in	Scoped in	Scoped out	Scoped in
	Landscape amenity	Scoped out	Scoped in	Scoped in	Scoped out	Scoped in
	Employment and income	Scoped in	Scoped out	Scoped out	Scoped out	Scoped out
Uncertainty	Employment and income	Scoped in	Scoped out	Scoped out	Scoped out	Scoped out
	Landscape amenity	Scoped out	Scoped in	Scoped in	Scoped out	Scoped in
Land take	Access to green space and open space	Scoped out	Scoped out	Scoped out	Scoped out	Scoped in
	Characteristics of the transport network	Scoped out	Scoped out	Scoped out	Scoped out	Scoped in
	Pollution of soils and water	Scoped out	Scoped out	Scoped out	Scoped out	Scoped in
	Landscape amenity	Scoped out	Scoped out	Scoped out	Scoped out	Scoped in
	Employment and income	Scoped out	Scoped out	Scoped out	Scoped out	Scoped in
Changes in economic conditions	Employment and income	Scoped in	Scoped out	Scoped out	Scoped out	Scoped out

Impact type	Relevant determinant(s) of human health	Wider Population	Age (families with children and adolescents; and older persons)	Mentally and/ or physically disadvantaged	Materially disadvantaged	Residential sub-populations
Changes in WCH access (across the Study Area)	Access to community, recreational and educational facilities	Scoped out	Scoped out	Scoped out	Scoped out	Scoped in
	Access to green space and open space	Scoped out	Scoped out	Scoped out	Scoped out	Scoped in
	Transport user safety	Scoped out	Scoped out	Scoped out	Scoped out	Scoped in

* Amenity is defined for the purposes of the human health assessment as an in-combination effect derived from changes in noise, air quality, visual appearance and general changes in activity levels, such as from traffic.

Table 14-5 Summary of Human Health assessment scope – operational phase

Impact type	Relevant determinant(s) of human health	Wider Population	Age (families with children and adolescents; and older persons)	Mentally and/ or physically disadvantaged	Materially disadvantaged	Residential sub-populations
Evolving changes in amenity* (in-combination)	Access to green space and open space	Scoped in	Scoped in	Scoped in	Scoped in	Scoped in
	Air quality	Scoped out	Scoped out	Scoped out	Scoped out	Scoped in
	Noise pollution and vibration	Scoped out	Scoped out	Scoped out	Scoped out	Scoped in
	Landscape amenity	Scoped out	Scoped in	Scoped in	Scoped out	Scoped in
Evolving changes in economic conditions	Employment and income	Scoped in	Scoped out	Scoped out	Scoped out	Scoped out
Permanent changes to the WCH network	Access to community, recreational and educational facilities	Scoped out	Scoped out	Scoped out	Scoped out	Scoped in
	Access to green space and open space	Scoped out	Scoped out	Scoped out	Scoped out	Scoped in
	Transport user safety	Scoped out	Scoped out	Scoped out	Scoped out	Scoped in

* Amenity is defined for the purposes of the human health assessment as an in-combination effect derived from changes in noise, air quality, visual appearance and general changes in activity levels, such as from traffic.

15 Glint and Glare

15.1 Introduction

- 15.1.1 This chapter of the Scoping Report considers the approach to the assessment of likely significant effects of Glint and Glare as a result of the Scheme during its construction, operation and decommissioning phases, with particular focus on residential amenity, road safety, railway operations and infrastructure, and aviation safety.
- 15.1.2 A Glint and Glare assessment will accompany the ES and DCO application, with any significant effects identified expected to be reduced to not significant through iterative design changes or mitigation screening prior to the application being submitted.

15.2 Legislation, Policy and Guidance

- 15.2.1 This Scoping Report has considered the NPS for Renewable Energy Infrastructure (NPS EN-3)¹⁴ published December 2025, as has the associated technical appendix 'Receptor Scoping and Methodology' (Volume III, Appendix A15.1).
- 15.2.2 NPS EN-3 (paragraph 2.10.94) states that "Solar PV panels are designed to absorb, not reflect, irradiation. However, the SoS should assess the potential impact of glint and glare on nearby homes, motorists, PRoW, and aviation infrastructure (including aircraft departure and arrival flight paths)."
- 15.2.3 NPS EN-3 does not state which receptors should be considered as part of a quantitative Glint and Glare assessment. Based on the extensive project experience of the author of this Chapter (Pager Power), typical receptors include residential dwellings, road users, railway infrastructure, and aviation activity and infrastructure.
- 15.2.4 Pager Power's Glint and Glare guidance³⁰⁵ details an industry best practice methodology for undertaking technical assessment of Glint and Glare effects, including study areas, identification of receptors, impact determination, and mitigation requirements. The Glint and Glare assessment will be carried out in accordance with this guidance document.

³⁰⁵ Pager Power (2026) Glint and Glare Guidance (fourth edition). Available at: <https://www.pagerpower.com/news/glint-and-glare-guidance-fourth-edition-download-now/>

15.3 Baseline Conditions

- 15.3.1 As detailed in Chapter 3: The Scheme and its Wider Context, the baseline environment of the Scheme comprises primarily rural farmland with a scattering of residential dwellings in addition to several villages and small towns including: Broom, Bidford-on-Avon, Salford Priors, Cleeve Prior, Middle Littleton and South Littleton. Several roads are also present, major and minor, including: The A46, A422, & B4088 and other more local routes.

15.4 Assessment Methodology

Study Areas

- 15.4.1 There is no formal guidance with regard to the maximum distance at which Glint and Glare should be assessed. From a technical perspective, there is no maximum distance for potential reflections. However, the significance of a solar reflection decreases with distance. This is because the proportion of an observer's field of vision that is taken up by the reflecting area diminishes as the separation distance increases. In most instances, terrain and shielding by vegetation are also more likely to obstruct an observer's view at greater distances.
- 15.4.2 For the purposes of scoping and based on professional judgement, a 1 km assessment area is considered appropriate when identifying ground-based receptors surrounding the Scheme.
- 15.4.3 There is no set buffer distance within which aviation effects must be modelled. However, in practice, concerns are most often raised for developments within 10 km of a licensed aerodrome. Requests for modelling at ranges of 10-20 km of a licensed aerodrome are less common. An assessment range of 5 km for unlicensed general aviation aerodromes and 10 km for licenced aerodromes is considered appropriate based on past project experience and professional judgement. This is the typical assessment range based on previous experience; aerodromes outside of this range would only be considered for assessment upon request from the relevant aerodrome.

- 15.4.4 If a railway line is identified within 200m of the solar panel areas, then a technical assessment is undertaken for railway receptors within a 500m assessment area. This assessment area size is deemed appropriate when identifying railway receptors and infrastructure and has been previously accepted by Network Rail. However, no railway lines have been identified which pass through or within 200 m of the Scheme and therefore railway receptors will not be assessed as part of the Glint and Glare assessment submitted with the DCO.

Receptor Sensitivity

- 15.4.5 In line with Pager Power guidance⁴⁰², the nature or sensitivity of all identified environmental receptors will be described as high, medium, low, or very low. This is set out in the context of Glint and Glare in Table 15-1 below.

Table 15-1 Sensitivity of Receptors

Sensitivity	Definition
High	Receptors with low capacity to experience solar reflections without fundamentally reducing safety or amenity.
Medium	Receptors with medium capacity to experience solar reflections without significantly reducing safety or amenity.
Low	Receptors with a high capacity to experience solar reflections without reduction to safety or amenity.
Very Low	Receptors can experience solar reflections without reduction to safety or amenity.

Receptor Sensitivity – Aviation

- 15.4.6 Air Traffic Control Towers are considered **High** sensitivity because they have low capacity to experience solar reflections without a fundamental reduction in safety.
- 15.4.7 Approaching aircraft are considered **Medium** sensitivity because they have medium capacity to experience solar reflections without a significant reduction in safety.
- 15.4.8 These definitions are based upon Pager Power's professional judgement, derived from consultation with airport safeguarding teams in developing Pager Power's Glint and Glare guidance.

Receptor Sensitivity – Road Users

- 15.4.9 To determine the sensitivity of road users, it is relevant to consider that road types can generally be categorised as:
- Major National – Typically a road with a minimum of two carriageways with a maximum speed limit of up to 70 mph. These roads typically have fast-moving vehicles with busy traffic;
 - National – Typically a road with one or more carriageways with a maximum speed limit of up to 60 mph or 70 mph. These roads typically have fast-moving vehicles with moderate to busy traffic density;
 - Regional – Typically a single carriageway with a maximum speed limit of up to 60 mph. The speed of vehicles will vary with a typical traffic density of low to moderate; and
 - Local – Typically roads and lanes with the lowest traffic densities. Speed limits vary.
- 15.4.10 Road users along local roads are considered **Very Low** sensitivity because they have capacity to experience solar reflections without a reduction to safety.
- 15.4.11 Road users along regional, and national roads are considered **Medium** sensitivity because they have medium capacity to experience solar reflections without a significant reduction in safety.
- 15.4.12 Road users on major national roads are considered **High** sensitivity because they have low capacity to experience solar reflections without a fundamental reduction in safety.
- 15.4.13 This is based on Pager Power's professional judgement which has been derived from consultation with local highway authorities and National Highways, responsible for safeguarding road safety, in developing Pager Power's Glint and Glare guidance.

Receptor Sensitivity – Dwellings

- 15.4.14 Dwelling receptors are considered **Medium** sensitivity because they have moderate capacity to experience solar reflections without a significant reduction to amenity.
- 15.4.15 This is based upon Pager Power's professional judgement, derived from consultation with LPAs that are responsible for safeguarding residential amenity, in developing Pager Power's Glint and Glare guidance.

Receptor Sensitivity – PRow and other observers

- 15.4.16 Observers within and in the vicinity of the Site, including the following:
- Walkers and horse riders using PRow;
 - Static observers including agricultural workers in neighbouring fields; and
 - Users of waterways with visibility of the site.
- 15.4.17 These receptors are considered of **Very Low** sensitivity. This is because they have capacity to experience solar reflections without a reduction to amenity or safety. This is based upon the low speed of any transiting observer, their ability to look away without safety impacts, and the presence of existing reflecting surfaces, such as lakes, in the natural environment.

Magnitude of Impact

- 15.4.18 The magnitude of impact upon all identified environmental receptors will be described as large, medium, small, or negligible. This is set out in the context of Glint and Glare in Table 15-2 below.

Table 15-2 Magnitude of Impact

Magnitude	Definition
Large	Solar reflection durations / intensities that exceed the maximum allowable levels representing a fundamental safety or amenity impact.
Medium	Solar reflection durations / intensities that exceed the maximum allowable levels, and the glare scenario is considered one which could cause a material safety or amenity impact.
Small	Solar reflection durations / intensities that are within the maximum allowable levels, or where the glare scenario is such that safety or amenity will not be materially impacted.
Negligible	Solar reflections that is not geometrically possible or will not be experienced in practice due to intervening screening.

Magnitude of Impact – Aviation, ATC Towers

- 15.4.19 A **Negligible** magnitude of impact would occur if solar reflections are not geometrically possible, or are not predicted to be experienced by an air traffic controller.

- 15.4.20 A **Small** magnitude of impact would occur if solar reflections with 'low potential for temporary after-image' are predicted to be experienced with sufficient mitigating factors or confirmation the level of glare is acceptable to the aerodrome.
- 15.4.21 A **Medium** magnitude of impact would occur if solar reflections with 'low potential for temporary after-image' are predicted to be experienced without sufficient mitigating factors, or if solar reflections with 'potential for temporary after-image' are predicted to be experienced.
- 15.4.22 A **Large** magnitude of impact would occur if solar reflections with 'potential for permanent eye damage' are predicted to be experienced.

Magnitude of Impact – Aviation, Approaching Aircraft

- 15.4.23 A **Negligible** magnitude of impact would occur if solar reflections are not geometrically possible, or are not predicted to be experienced by a pilot.
- 15.4.24 A **Small** magnitude would occur under the following scenarios:
- Solar reflections originate from outside a pilot's main field of view;
 - The solar reflections have 'low potential for temporary after-image';
 - The solar reflections have 'potential for temporary after-image' with sufficient mitigating factors; and
 - The aerodrome has confirmed the level of glare is acceptable.
- 15.4.25 A **Medium** magnitude of impact would occur if the solar reflections have 'potential for temporary after-image' without sufficient mitigating factors.
- 15.4.26 A **Large** magnitude of impact would occur if the solar reflections have 'potential for permanent eye damage'.

Magnitude of Impact – Road Users

- 15.4.27 A **Negligible** magnitude of impact would occur if solar reflections are not geometrically possible, or are not predicted to be experienced by a road user.
- 15.4.28 A **Small** magnitude of impact would occur if solar reflections were experienced from outside a road user's primary horizontal field of view (50 degrees either side of the direction of travel), or inside of road user's primary horizontal field of view with sufficient mitigating factors.
- 15.4.29 A **Medium** magnitude of impact would occur if solar reflections were experienced from within a road user's primary horizontal field of view without sufficient mitigating factors.

- 15.4.30 A **Large** magnitude of impact would occur if solar reflections were experienced from directly in front of a road user's direction of travel with no mitigating factors.

Magnitude of Impact – Dwellings

- 15.4.31 A **Negligible** magnitude of impact would occur if solar reflections are not geometrically possible, or are not predicted to be experienced in practice within a dwelling.
- 15.4.32 A **Small** magnitude of impact would occur if solar reflections were experienced for less than three months per year and for less than 60 minutes on any given day, or if solar reflections exceeded one of the thresholds with sufficient mitigating factors.
- 15.4.33 A **Medium** magnitude of impact would occur if solar reflections were experienced for more than three months per year or for more than 60 minutes on any given day without sufficient mitigating factors.
- 15.4.34 A **Large** magnitude of impact would occur if solar reflections were experienced for more than three months per year and for more than 60 minutes on any given day.

Magnitude of Impact – PRow and other observers

- 15.4.35 The magnitude of impact upon an observer is predominantly dependent on whether solar reflections are possible and visible from the observer.
- 15.4.36 A **Negligible** magnitude would occur if glare could not be experienced by the receptor.
- 15.4.37 A **Low** magnitude would occur if solar reflections could be experienced by the receptor.

Significance of Effect

- 15.4.38 The significance of an environmental effect is determined by the interaction of sensitivity and magnitude. This significance matrix is set out in below.

Table 15-3 Significance Matrix

Magnitude	Sensitivity			
	High	Medium	Low	Very Low
Large	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Minor
Small	Minor	Minor	Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

15.4.39 Overall, the level of effect would be considered 'Significant' if the resultant significance of effect were 'Moderate' or 'Major'.

15.5 Embedded Mitigation

15.5.1 The impact of the Scheme can only reliably be determined via detailed geometric modelling; this will be undertaken in accordance with the guidance as stated in Section 15.2.

15.5.2 Common mitigation strategies to reduce impacts from glint and glare for ground-based receptors are:

- Provision of screening (planting or opaque fence) at the Scheme Boundary or elsewhere between the observer and reflecting panel areas;
- Changes to the Site configuration. This may involve changes to the azimuth angle of the solar panels; and/or changes to the elevation (tilt) angle of the solar panels; and
- Changes to technology. This may involve implementing areas of fixed panels instead of single-axis tracking panels.

15.5.3 The most common mitigation solution for ground-based receptors is the provision of screening at the perimeter of the site where panels are installed. A screening solution that sufficiently obstructs visibility of the potentially reflecting panels will mitigate potential impacts from glint and glare.

15.5.4 The reflecting panels that should be obscured from view (if required), based on the proposed configuration, will be defined within the Glint and Glare assessment submitted with the DCO.

15.5.5 Where screening solutions are not feasible, changes to the Site configuration will be investigated during detailed design.

- 15.5.6 For aviation receptors, where mitigation is recommended/required, the most common mitigation strategy involves changes to the Site configuration. This is because typical perimeter screening solutions are typically unviable due to the inherent visibility of elevated receptors.

15.6 Likely Significant Effects

- 15.6.1 The impact of the Scheme can only reliably be determined via detailed geometric modelling; this will be undertaken in accordance with the methodology and guidance as laid out in previous sections.
- 15.6.2 A detailed Glint and Glare impact assessment report will accompany the application.

15.7 Assumptions and Limitations

- 15.7.1 The assessment will be limited to desk-based modelling. No Site survey is initially proposed. The assessment approach is considered to be both appropriate and robust, as it is standard practice for this type of assessment to be conducted on a desk-based basis.
- 15.7.2 The following is a list of assumptions and limitations associated with the model:
- The geometric model considers 100% sunlight during daylight hours. This assumption provides a conservative assessment of potential effects and a worst-case scenario;
 - Only reflections from the face of the panel are considered. The frame supporting the panels, or the back of solar panels, has not been considered as the frame will be obstructed from view by the face. Where views of the frame are possible, a solar reflection from the frame is from of a smaller surface area will be less significant than from the face of a solar panel with a larger surface area;
 - The geometric model shall assume panels within the entirety of the indicated areas of the parameter plan. In actual practice, rows and arrays of solar panels will include spacing between panels to decrease the effects of shadowing upon neighbouring panels. Therefore, the model assumes a highly conservative number of panels and presents a worst-case geometric result;
 - The model assumes that a receptor can view the face of every panel (i.e. 'point', defined in the following paragraph) within the Site whilst in reality this will not occur, as rows of panels will obstruct views of panels behind them except in areas of varying terrain. Therefore, any predicted solar reflection from the face of a solar panel that is not visible to a receptor will not occur in practice;

- A finite number of points within each defined solar panel area is chosen based on an assessment resolution so that a comprehensive understanding of potential effects can be formed. This determines whether a solar reflection could occur at a chosen receptor. The model does not consider the specific panel rows or the entire face of the solar panel within the areas, rather a single point is defined every x metres (the assessment resolution) with the geometric characteristics of the panel. A panel area is however defined to encapsulate all possible panel locations; and
- The geometric modelling does not account for any existing screening in the form of vegetation and buildings that could obstruct views of reflecting panels. Therefore, the modelling of potential effects portrays the 'worst-case scenario' for the Scheme during the operational phase. Visibility of views in practice is considered within the desk-based analysis which follows the geometric modelling.

15.8 Conclusions on Scoping

- 15.8.1 It is recommended that Glint and Glare effects with respect to aviation be scoped into the ES for receptors identified in Volume III, Appendix A15.1. A technical appendix will also be prepared which considers Glint and Glare impacts, and this will be submitted alongside the ES.
- 15.8.2 Detained assessment of Glint and Glare effects upon road safety, residential amenity, and effects upon PRow and other observers are proposed to be scoped out of the ES. Effects upon these receptors will be modelled within the technical appendix of Glint and Glare impacts. This approach is based upon a commitment to mitigate any significant effects identified as part of the impact assessment to a level that they are not significant.
- 15.8.3 Effects during the construction and decommissioning phases are proposed to be scoped out of the assessment as effects during the operational phase are expected to present a worst-case scenario.
- 15.8.4 It is recommended that Glint and Glare effects towards receptors outside of the relevant study area be scoped out of the ES.

16 Cumulative Effects

16.1 Introduction

16.1.1 The ES will consider the potential for likely significant cumulative effects on the environment. The cumulative effects assessment is divided into two different assessments:

- **In-combination assessment** – assesses the effects of multiple impacts from the Scheme on a single receptor.
- **Cumulative assessment** – assesses the effects of multiple impacts from the Scheme and other Reasonably Foreseeable Future Projects (RFFPs) on a single receptor.

16.2 Legislation, Policy and Guidance

16.2.1 The Infrastructure Planning (EIA) Regulations 2017³ are of relevance in that paragraph 5 of Schedule 4 of the Regulations requires an ES to include the assessment of cumulative effects.

16.2.2 The following national policy is relevant to the cumulative effects assessment:

- Overarching NPS for Energy (EN-1)¹³
- NPS for Renewable Energy Infrastructure (EN-3)¹⁴
- NPS for Electricity Networks Infrastructure (EN-5)¹⁵
- NPPF¹⁸

16.2.3 Local policy relevant to the cumulative effects assessment is detailed below:

- Stratford-on-Avon District Core Strategy 2011–2031²⁵
- SWLP – Preferred Options (2025)²⁶
- SWDP (2016) (Under Review for Update)²⁴
- Adopted Borough of Redditch Local Plan No.4²³

16.2.4 The following guidance has been used to inform this assessment:

- PINS guidance titled NSIPs: Advice on Cumulative Effects Assessment (CEA) (2025)³¹
- DMRB LA104³⁴

16.3 Assessment Methodology

- 16.3.1 The proposed approach to assessing these cumulative effects has been developed with reference to the relevant parts of the PINS guidance titled NSIPs: Advice on Cumulative Effects Assessment (CEA) (2025). It also incorporates principles from the DMRB LA104³⁴, which are considered to provide transferable best practice guidance for specific types of cumulative effects.

In-combination effects

- 16.3.2 The topic Chapters of this Report each define a specialist assessment methodology, which results in differing approaches to drawing out the significant in-combination effects. In some instances, methodologies incorporate the consideration of in-combination impacts as an inherent part of the assessment. In such instances, the CEA Chapter of the ES will cross reference the assessment to avoid duplication.
- 16.3.3 The first stage is to identify receptors that have been assessed as receiving an effect of minor or greater significance by more than one of the ES assessment chapters. Each of these receptors will then be assessed in turn to determine whether there would be a significant in-combination effect on the receptor. There is no specific guidance on how a significant in-combination effect should be determined. The significance assessment will be based on professional judgment, consultation, and reasoned judgement.

Cumulative effects

- 16.3.4 The PINS guidance sets out a four-stage approach to the cumulative effects assessment, summarised in the following sections. The ES will include a detailed method for assessing cumulative effects based on the PINS guidance.

Stage 1: Establishing the long list of other existing and, or approved development

- 16.3.5 Based on the Zone of Influence (Zol) for each environmental assessment chapter, generate a long list of RFFPs, where the RFFPs could interact with the Zol.
- 16.3.6 The PINS guidance provides three tiers of projects that should be considered in the long list, based on the certainty of their occurrence. Volume III, Appendix A16.1 provides the initial long list of projects.

- 16.3.7 The RFFP long-list has been included at this scoping stage to ensure early consideration of relevant developments and provide an opportunity for statutory consultees to reference any additional projects that may merit consideration.

Stage 2: Establishing a shortlist of other existing and, or approved development

- 16.3.8 The long list is narrowed down to a shortlist based on threshold criteria and professional judgement. The PINS guidance recommends the consideration of the following factors when determining the threshold criteria:
- Temporal scope – assessing whether there be overlap of the construction, operation, and decommissioning phases of the RFFPs and the Scheme.
 - Scale and nature of development – assessing whether the nature of the effects created by the Scheme are likely to impact the same or similar receptors as the RFFP.
 - Other factors – the professional judgement of the assessor will identify other criteria such as the nature and sensitivity of the receiving environment to the Scheme and RFFP.

Stage 3: Information gathering

- 16.3.9 Detailed information on each of the shortlisted projects needs to be gathered including:
- The proposed design and location information of the RFFP;
 - The proposed programme of construction, operation and decommissioning of the RFFP; and
 - Any available environmental assessments that set out baseline data and effects arising from the other existing and, or approved development.
- 16.3.10 The availability of information will depend on the design stage of the RFFP. There will be more information available for RFFPs that have already been consented, than those still in the planning stage.

Stage 4: Assessment

- 16.3.11 An assessment of the cumulative effects will be undertaken proportionate with the level of detail of the information available. In most instances the assessment will be qualitative and be based on professional judgement.

- 16.3.12 Where significant cumulative effects are identified, additional mitigation will be proposed or a justification for why none is proposed will be provided.

17 Summary and Conclusion

17.1 The Request

- 17.1.1 The Applicant confirms that it will be providing an ES to accompany its DCO application, and this Scoping Report therefore constitutes notice under Regulation 8(1)(b) of the Infrastructure Planning (EIA) Regulations 2017 (as amended).
- 17.1.2 This Scoping Report also forms a request for a Scoping Opinion from the SoS on the scope, and level of detail, of the information to be provided in the ES under Regulation 10(1) of the EIA Regulations. It includes the information required by Regulation 10(3) as follows:
- a plan sufficient to identify the land;
 - a description of the Scheme, including its location and technical capacity;
 - an explanation of the likely significant effects of the Scheme on the environment; and
 - such other information or representations as the Applicant may wish to provide or make.

17.2 Summary of Scoping Request

- 17.2.1 The following topics have been scoped in for further assessment in the ES:
- Ecology and Biodiversity
 - Ground Conditions and Contamination
 - Soils and Agriculture
 - Climate Change
 - Transport and Access
 - Noise and Vibration
 - Landscape and Visual
 - Historic Environment
 - Population and Human Health
 - Glint and Glare
 - Cumulative Effects
- 17.2.2 A summary of the subtopics within these chapter proposed to be scoped in and out within the ES is presented in Table 17-1 below.

Table 17-1 Topics to be scoped in/out of EIA

Environmental Topic	Proposed Elements to be Scoped In	Proposed Elements to be Scoped Out
Ecology and Biodiversity	Designated sites for nature conservation within 2km of the Sites and CRCs. Non-statutory designated sites within 1km of the Sites and CRC. Ancient woodland and veteran trees within 500m of the Sites and CRC. Terrestrial habitat (including priority habitats, and priority/protected plant species) within and up to 50m of the Sites and CRC. Amphibians (including GCN) within and up to 250m of the Sites and CRC. Bats (commuting and foraging) within the Sites and bats (roosting) within and up to 50m of the Sites and CRC. Breeding and non-breeding birds within the Sites. Barn owls within and up to 175m from the Sites and CRC. Otters within and up to 200m from the Sites and CRC. Water voles within and up 10m of the Sites and CRC. Widespread reptile species within the Sites and CRC. Terrestrial invertebrates within the Sites.	Statutory Designated Sites greater than 2km of the Sites and CRC. Non-statutory designated sites greater than 1km of the Sites and CRC. Ancient woodland and veteran trees greater than 500m of the Sites and CRC. Bats (commuting and foraging) within the CRC. Badgers within and up to 30m of the Sites and CRC. Breeding birds within the CRC. Non-breeding birds within the CRC. Hazel dormice within the Sites and CRC. Beavers within the Sites and CRC. Other priority mammals within the Sites and CRC. Lake habitats, fish, aquatic macroinvertebrates, and aquatic macrophytes present on watercourses and standing waterbodies on/adjacent to the Sites and CRC.
Ground Conditions and Contamination	Effect of on-site and off-site contamination on Human health during construction, operation and decommissioning.	New sources of contamination arising from construction activities and from damage to solar panels during operation.

Environmental Topic	Proposed Elements to be Scoped In	Proposed Elements to be Scoped Out
		Ground Gas leakages during construction, operation and decommissioning. Impacts to statutory or non-statutory geological or environmental designations during construction, operation and decommissioning. Identifying Unexploded Ordnance (UXO) during construction, operation and decommissioning.
Soils and Agriculture	Assessment of the effects of construction on agricultural land holdings.	Soil resources, agricultural land, soil functions and ecosystem services, and Soil Carbon during construction phase. All receptors during operational and decommissioning phases.
Climate Change	Assessment of GHG emissions during operation phase.	Assessment of GHG emissions during construction and decommissioning phase.
Transport and access	Construction traffic generation, construction vehicle routing, effects on the LRN, impacts on NMUs and impacts on PRow during the construction phase.	Routine operational traffic and access effects and non-routine operational maintenance during the operational phase. All elements during the decommissioning phase.
Noise and Vibration	Noise and vibration from construction works and traffic noise during the construction phase. Noise from scheme infrastructure during the operational phase. Noise and vibration during the decommissioning phase.	Traffic vibration during the construction phase. Traffic noise and vibration and operation equipment vibration during the operational phase. Decommissioning noise and vibration during the decommissioning phase.

Environmental Topic	Proposed Elements to be Scoped In	Proposed Elements to be Scoped Out
Landscape and Visual	The following receptors are scoped in for construction operational and decommissioning phases: ▪ The Cotswolds National Landscape (NL). ▪ Arden Special Landscape Area (SLA). ▪ National Character Area: Arden NCA97. ▪ National Character Area: Severn and Vales NCA106. ▪ Regional Character Areas. ▪ WoCC, Landscape Character Assessment. ▪ Night-time effects. ▪ Representative viewpoints (see Table 12-1) These are mainly residential receptors, PRow users, road users and views from or towards historical designations and the NL.	The Malvern Hills NL and dark skies during construction, operational and decommissioning phases.
Historic Environment	Indirect impacts to designated assets, direct and indirect impacts to non-designated assets, direct Impacts to archaeological remains, and historic landscape during the construction and operational phase work associated with solar panel sites, BESS, sub-station. Indirect impacts to designated assets, direct impacts to non-designated assets, direct impacts to archaeological remains, and historic landscape during construction phase work associated with CRCs.	Indirect impacts to designated assets, direct and indirect impacts to non-designated assets, direct Impacts to archaeological remains, and historic landscape during decommissioning work associated with solar panel sites, BESS, sub-station. Indirect impacts to designated assets, direct impacts to non-designated assets, direct impacts to archaeological remains, and historic landscape during operation and decommissioning work associated with CRCs.
Population and Human Health	Construction phase: Introduction of construction traffic movements (across the Study Area network)-	Construction phase: Introduction of construction traffic movements (across the Study Area network)-

Environmental Topic	Proposed Elements to be Scoped In	Proposed Elements to be Scoped Out
	Access to community, recreational and educational facilities, characteristics of the transport network, and transport user safety for wider population, age (families with children and adolescents; and older persons), mentally and/ or physically disadvantaged, materially disadvantaged, residential sub-populations. Access to green space and open space, access to healthcare facilities, for age (families with children and adolescents; and older persons), mentally and/ or physically disadvantaged, materially disadvantaged, residential sub-populations. Changes in amenity* (in-combination)- Access to green space and open space, air quality, noise pollution and vibration, landscape amenity for wider population, age (families with children and adolescents; and older persons), mentally and/ or physically disadvantaged, materially disadvantaged, residential sub-populations. Employment and income for wider population. Uncertainty- Employment and income for wider population, Landscape amenity for age (families with children and adolescents; and older persons), mentally and/ or physically disadvantaged, and residential sub-populations.	Access to green space and open space, access to healthcare facilities for wider population. Changes in amenity* (in-combination)- Air quality, noise pollution and vibration, landscape amenity for wider population and materially disadvantaged. Employment and income for age (families with children and adolescents; and older persons), mentally and/ or physically disadvantaged, materially disadvantaged, residential sub-populations. Uncertainty- Employment and income for age (families with children and adolescents; and older persons), mentally and/ or physically disadvantaged, materially disadvantaged, residential sub-populations. Landscape amenity for wider population and materially disadvantaged. Land take- Access to green space and open space, characteristics of the transport network, pollution of soils and water, landscape amenity, and employment and income for wider population, age (families with children and adolescents; and older persons), mentally and/ or physically disadvantaged, and materially disadvantaged.

Environmental Topic	Proposed Elements to be Scoped In	Proposed Elements to be Scoped Out
	Land take- Access to green space and open space, characteristics of the transport network, pollution of soils and water, landscape amenity, and employment and income for residential sub-populations. Changes in economic conditions- Employment and income for wider population. Changes in WCH access (across the Study Area)- Access to community, recreational and educational facilities, access to green space and open space and transport user safety for residential sub-populations. Operation Phase: Evolving changes in amenity* (in-combination)- Access to green space and open space for wider population, age (families with children and adolescents; and older persons), mentally and/ or physically disadvantaged, materially disadvantaged, residential sub-populations. Air quality and noise pollution and vibration for residential sub-populations. Landscape amenity for age (families with children and adolescents; and older persons), mentally and/ or physically disadvantaged, and residential sub-populations.	Changes in economic conditions- Employment and income for age (families with children and adolescents; and older persons), and mentally and/ or physically disadvantaged, materially disadvantaged and residential sub-populations. Changes in WCH access (across the Study Area)- Access to community, recreational and educational facilities, access to green space and open space and transport user safety for wider population, age (families with children and adolescents; and older persons), and mentally and/ or physically disadvantaged, and materially disadvantaged. Operation Phase: Evolving changes in amenity* (in-combination)- Air quality and noise pollution and vibration for wider population, age (families with children and adolescents; and older persons), mentally and/ or physically disadvantaged, materially disadvantaged. Landscape amenity for wider population and materially disadvantaged. Evolving changes in economic conditions- Employment and income for age (families with children and adolescents; and older persons), mentally and/ or physically disadvantaged, materially disadvantaged, and residential sub-populations.

Environmental Topic	Proposed Elements to be Scoped In	Proposed Elements to be Scoped Out
	Evolving changes in economic conditions- Employment and income for wider population. Permanent changes to the WCH network- Access to community, recreational and educational facilities, access to green space and open space, and transport user safety for residential sub-populations.	Permanent changes to the WCH network- Access to community, recreational and educational facilities, access to green space and open space, and transport user safety for wider population, age (families with children and adolescents; and older persons), mentally and/ or physically disadvantaged, and materially disadvantaged.
Glint and Glare	Operational effects on receptors identified in Volume III, Appendix A15.1.	Effects during the construction and decommissioning phases. Effects towards receptors outside of the relevant study area. Effects upon road safety and residential amenity.
Cumulative Effects	In-combination effects during construction, operation, and decommissioning have been scoped in. Cumulative effects during construction, operation, and decommissioning will be scoped in.	No elements of the cumulative effects assessment are proposed to be scoped out.

