

2 EIA METHODOLOGY

Introduction

2.1 This chapter explains the EIA methodology and describes the ES structure and content. In particular, it details the process of identifying and assessing the likely significant effects of the Development on the environment. The ES has been prepared in accordance with the EIA Regulations and reference has also been made to currently available good practice guidance on EIA.

Scoping

2.2 Scoping is an important tool for identifying the likely significant effects of a proposed development through its design, construction, operation and decommissioning phases and ensures that appropriate mitigation options are considered where necessary. A Scoping Report (Appendix 2.1) was submitted to PEDW on 8th November 2023 in support of a formal request for a Scoping Direction. The Scoping Report identified the topics proposed to be scoped into and out of the ES and, for those assessments to be included, details of the scope and methodology of the assessments. The topics proposed to be scoped into the ES comprised:

- Historic Environment;
- Landscape and Visual Effects;
- Agricultural Land and Soils; and
- Biodiversity.

2.3 During the EIA Scoping process various consultees were provided the opportunity to comment on the EIA Scoping Report (Appendix 2.1). As one of the consultees, Pembrokeshire County Council (PCC) provided an EIA Scoping response dated 11th January to PEDW (Appendix 2.2). As such Table 2.1 sets out how the key issues raised by the consultees were addressed in the ES Technical Chapters

Table 2.1 Issues raised in the EIA Scoping Process from Statutory Consultees

Statutory Consultees	Issue Raised in the EIA Scoping Process from Statutory Consultees	ES Chapter addressed
Pembrokeshire County Council (PCC)	PCC requests that landscape and visual effect assessment includes consideration of Tree Preservation Orders (TPOs). A list of species and habitats to be assessed in the ES was provided. PCC identified that an Ecological Management Plan is also required.	Chapter 7 Landscape and Visual Effects Chapter 9 Biodiversity
Natural Resources Wales (NRW)	Natural Resources Wales noted that the Site is regularly used by otters, so impacts of increased traffic on otters should be assessed. They suggested that further surveys should be completed regarding bats as the amount and quality of habitats had conflicting statements. Natural Resources Wales further provided advice on landscape considerations and relevant guidance for LVIA. A list was also provided for details that should be included in the Construction Environmental Management Plan (CEMP).	Chapter 9 Biodiversity Chapter 7 Landscape and Visual Effects An outline Construction Environmental Management Plan (oCEMP) and an outline Decommissioning Environmental

Statutory Consultees	Issue Raised in the EIA Scoping Process from Statutory Consultees	ES Chapter addressed
		Management Plan (oDEMP) is provided at Appendix 5.1 and Appendix 5.2.
Cadw	Cadw requested that potential archaeological features be investigated further within a geophysical survey and/or archaeological evaluation. Any impact on designated historic assets should be carried out in accordance with The Setting of Historic Assets in Wales. Cadw further stated that views from the forecourt of the Lamphey Court Hotel should be added to photographic viewpoints.	Chapter 6 Historic Environment and Chapter 7 Landscape and Visual Effects.
Soil Policy & Agricultural Land Use Planning Unit	Soil Policy & Agricultural Land Use Planning Unit explained that clear evidence will need to be provided regarding protecting BMV, showing an overriding need to development on BMV land, and produce a clear sequential test approach. It was also requested that a Soil Management Scheme be provided as well as more information regarding the Development such as extent of cable trenching and areas for construction compounds.	Chapter 8 Agricultural Land

2.4 PEDW adopted its Scoping Direction on 13th March 2024 (Appendix 2.3). Table 2.2 below sets out how the key issues raised in the PEDW adopted Scoping Direction, as well as how the issues have been addressed within the ES and their respective locations.

Table 2.2 Issues raised in the EIA Scoping Direction

PEDW Scoping Direction Comment	Where it has been addressed in the ES
Human Health	
Scoped into the ES, but not as a standalone chapter	A Human Health Technical Note is provided as Appendix 2.4 of this ES.
Air Quality, Noise and Vibration	
PEDW agree that air quality, noise and vibration can be scoped out of the ES but note that a CEMP and DEMP should set out mitigation measures and form technical appendices to the ES.	An oCEMP in Appendix 5.1 and oDEMP in Appendix 5.2 of this ES, containing measures relating to noise and vibration and air quality.
Transport	
PEDW agree to scope out transport from the ES, provided that the environmental impacts associated with transport are addressed in the CEMP.	An oCEMP in Appendix 5.1 and oDEMP in Appendix 5.2 of this ES, which addresses the construction and decommissioning traffic routing as well as associated noise and air quality impacts of transport movements.
Climate Change	
Climate Change is scoped in but not as a standalone chapter, the ES should contain information adequate to enable the decision maker to judge the likely impact on carbon emissions.	A Carbon Assessment is provided as Appendix 2.5 of this ES.
Waste	
Any potential impacts of waste and mitigation measures will be set out in the CEMP and DEMP.	An oCEMP in Appendix 5.1 and oDEMP in Appendix 5.2 of this ES contains mitigation measures relating to waste.
External Lighting	
PEDW agrees that a standalone chapter for external lighting is not necessary, however, it should be	The impact of lighting on protected species is assessed in Chapter 9 of the ES: Biodiversity.

addressed in appropriate chapters of the ES, such as biodiversity.	
Historic Environment	
Archaeology: Cadw note that the HEDBA will need to include reviews of all relevant LiDAR information and should provide an appropriate initial assessment of the archaeological resource inside the proposed development area. Cadw also explain if investigation reveals archaeological features, work will need to be carried out prior to the completion of the EIA.	Addressed in Chapter 6 of the ES: Historic Landscape.
Built Heritage: Alleston Farmhouse should be recognised with the historic outbuildings. The setting of these historic assets should be considered in analysis. The EIA will also fully need to consider the effect on the setting of the Grade II listed building 84963 Alleston and significant views from Lamphey Bishops Palace & Lamphey Court historic park and garden.	
Historic Landscapes: the impact of the two historic landscapes identified should be considered.	
Landscape and Visual Effects	
The stages in which the Landscape Visual Impact Assessment (LVIA) should assess the effects of the development should include baseline, during construction, on completion, 15 years post completion and decommissioning at 40 years.	Addressed in Chapter 7 of the ES: Landscape and Visual Effects
The Zone of Theoretical Visibility (ZTV) should extend 3 to 5km.	
Visibility from the Pembrokeshire Coast National Park should be assessed.	
Other solar farm developments located within the same Landscape Character Area should be considered for cumulative effects. This includes developments at Chapel Hill and at Wogaston.	
The ES should explain the design evolution and how landscape and visual considerations have informed and shaped the proposals. Layout proposals should consider the design guidance - <i>Designing for Renewable Energy in Wales, Design Commission for Wales</i> .	Addressed in Chapter 4 of the ES: Alternatives and Design Evolution
Agricultural Land and Soils	
Further information on the impact of soil is required which includes: the type, location and level of infrastructure, total number and spacing of piles installed, cable trenching, materials used, track extent and location, inverter pads numbers and locations, and areas for construction compounds.	Addressed in Chapter 8 of the ES: Agricultural Land
Methodology for assessing and avoiding impacts to soils on site during installation and decommissioning of infrastructure should be included.	
A soil management scheme should be included.	
Biodiversity	
The Pembrokeshire Marine Special Area of Conversation will need to be considered.	Addressed in Chapter 9 of the ES: Biodiversity
Natural Resources Wales state that Phase 1 Habitat Survey should be completed in accord with the NCC Phase 1 survey guidelines. PCC noted the need to	

PCC add the need to include any identification of invasive species.	
The effect of Site boundary features on reptiles should be identified and described.	
Surveys of badgers must consider that activity within 30 meters of a settlement require a license.	
Natural Resources Wales confirms that otters regularly use the Site and breed locally, therefore impacts to the species must be considered within a 200m buffer. Potential effects of increased traffic from the development on otters should also be considered.	
Natural Resources Wales advise further bat surveys should be undertaken to identify foraging habitat in the grassland and grazing pasture on site. Impact on foraging and commuting bats should be considered.	
Hedgerow impact on dormice should be considered. If dormouse are found to be affected, a Dormouse Conservation Plan must be included.	
If works are proposed within 6 metres of freshwater features, an assessment for water vole on these features should be completed.	

Disciplines Scoped In

- 2.5 Further to the issues raised in the PEDW Scoping Direction and PCC's Scoping response, the technical disciplines scoped into the ES are as follows:
- Historic Environment;
 - Landscape and Visual Effects;
 - Agricultural Land; and
 - Biodiversity.
- 2.6 The Scoping Direction noted that although Human Health, Climate Change and Lighting should be scoped out of the ES, technical reports or consideration within other ES Chapters should be completed to assess the Development's impact on these technical disciplines. Technical notes are provided as appendices to this chapter, with Chapter 9: Biodiversity of the ES addressing the impact of lighting on species.

Disciplines Scoped Out

- 2.7 PEDW Scoping Direction and PCC's Scoping response stated that the following technical disciplines have been scoped out of the ES:
- Human Health;
 - Air Quality;
 - Noise and Vibration;
 - Transport;
 - Climate Change;
 - Contaminated Land;

- Wind;
- Daylight, Sunlight and Overshadowing;
- Water Resources and Flood Risk;
- Waste;
- Lighting; and
- Major Accidents and Disasters.

Approach to Technical Studies

2.8 The EIA Regulations stipulate that an ES should identify, describe and assess the likely significant effects of a development on the environment. Therefore, this ES identifies and assesses the likely significant effects of the Development in relation to the construction, operation and decommissioning phases. Environmental effects have been evaluated with reference to definitive standards and legislation where available. Where it has not been possible to quantify effects, qualitative assessments have been carried out, based on available knowledge and professional judgement. Where uncertainty exists, this has been noted in the relevant assessment chapter.

Structure of Technical Chapters

2.9 Each technical chapter of the ES (Chapters 6-9) has been set out broadly in line with Table 2.3 below.

Table 2.3: Structure of the Technical Chapters

Heading	Content
Introduction	Each of the technical chapters begins with an introduction providing context to the EIA completed.
Policy Context	This section includes a summary of policies of relevance to the environmental discipline and explains its purpose in the context of the Development and the ES.
Assessment Methodology	This section describes the method and approach employed in the assessment of likely significant effects, the criteria against which the significance has been evaluated, the sources of information used and any technical difficulties encountered. Relevant legislation is also identified.
Baseline Conditions	This section describes and evaluates the baseline environmental conditions i.e. the current situation and anticipated changes over time i.e. the future baseline.
Likely Significant Effects	This section identifies the likely significant effects on the environment resulting from the Development during construction, operational, and decommissioning phases. A description of the likely significant effects of the Development and an assessment of their predicted significance is provided.
Mitigation Measures	This section describes the measures which would be implemented to mitigate against potential adverse impacts. Where possible, enhancement measures have also been proposed.
Residual Effects	The residual effects, i.e. the remaining effects of the Development assuming implementation of the proposed mitigation measures, have been estimated and presented.
Cumulative Effects	This section considers the cumulative effects of the Development with committed developments identified within the vicinity of the Site. Any likely significant effects on the environment arising in this respect are set out in this section.
Summary	Each technical chapter concludes with a brief summary outlining the potential residual effects for the construction phase (short/medium) and operation (medium/long-term) phase of the Development.

Baseline Conditions

- 2.10 These are taken to be the conditions at the time or immediately prior to the submission of the planning application in 2024. Each technical assessment has also identified the Future Baseline conditions in the absence of the Development.

Likely Significant Effects

- 2.11 The assessment of impact significance has been undertaken using appropriate national and international quality standards. Where no such standards exist, the judgments that underpin the attribution of significance are described. The guidelines, methods and techniques used in the process of determining significance of effects are contained within each of the technical chapters presented.

Magnitude

- 2.12 The methodology for determining the scale, or magnitude, of effect is set out in Table 2.4 below.

Table 2.4: Methodology for Assessing Magnitude

Magnitude of Impact	Criteria for Assessing Effect
Major	Total loss or major/substantial alteration to key elements/features of the baseline conditions such that the post development character/composition/attributes will be fundamentally changed.
Moderate	Loss or alteration to one or more key elements/features of the baseline conditions such that post development character/composition/attributes of the baseline will be materially changed.
Minor	A minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible/detectable but not material. The underlying character / composition / attributes of the baseline condition will be similar to the pre-development circumstances/situation.
Negligible	Very little change from baseline conditions. Change barely distinguishable, approximating to a 'no change' situation.

Sensitivity

- 2.13 The sensitivity, importance or value of the resource or receptor is normally derived from:
- Legislative controls;
 - Designated status within the land use planning system;
 - The number of individual receptors such as residents;
 - An empirical assessment on the basis of characteristics such as rarity or condition; and/or
 - Ability of the receptor to absorb change.
- 2.14 The sensitivity of a receptor is based on the relative importance of the receptor using the scale in Table 2.5 below.

Table 2.5: Methodology for Assessing Sensitivity

Sensitivity	Examples of Receptor
High	The receptor/resource has little ability to absorb change without fundamentally altering its present character, or is of international or national importance.
Moderate	The receptor/resource has moderate capacity to absorb change without significantly altering its present character, or is of high importance.
Low	The receptor/resource is tolerant of change without detriment to its character, is of low or local importance.

Significance

2.15 The significance of an environmental effect is determined by the interaction of magnitude and sensitivity, whereby the impacts can be beneficial or adverse. Table 2.6 below shows how magnitude and sensitivity interact to derive effect significance. Determination of significance also includes consideration of:

- Extent of the effect
- Type of effect (beneficial or adverse)
- Duration of effect (whether short, medium or long term; permanent or temporary)
- Nature of effect (whether direct or indirect, reversible or irreversible); and
- Whether the effect occurs in isolation, is cumulative or interactive.

Table 2.6: Methodology for Assessing Significance

Magnitude	Sensitivity		
	High	Moderate	Low
Major	Major Adverse/Beneficial	Major - Moderate Adverse/Beneficial	Moderate - Minor Adverse/Beneficial
Moderate	Major - Moderate Adverse/Beneficial	Moderate - Minor Adverse/Beneficial	Minor Adverse/Beneficial
Minor	Moderate - Minor Adverse/Beneficial	Minor Adverse/Beneficial	Minor Adverse/Beneficial - Negligible
Negligible	Negligible	Negligible	Negligible

2.16 The above magnitude and significance criteria have been provided as a guide for technical specialists to assess impact significance. Where discipline specific methodology has been applied that differs from the generic criteria above, this has been clearly explained within the given chapter under the heading of Assessment Methodology.

Mitigation

2.17 Any adverse environmental effects have been considered for mitigation at the design stage and, where practicable, specific measures have been put forward. Measures have been considered based on the following standard hierarchy of mitigation:

- Avoidance;
- Reduction;
- Compensation;
- Remediation; and
- Enhancement.

2.18 Where the effectiveness of the mitigation proposed has been considered uncertain, or where it depends upon assumptions of operating procedures, data and/or professional judgement has been introduced to support these assumptions.

2.19 Mitigation measures recommended during the construction and decommissioning phases are set out in the outline Construction Environmental Management Plan (oCEMP) (Appendix 5.1) and outline

Decommissioning Environmental Management Plan (oDEMP) (Appendix 5.2), with a detailed CEMP and DEMP secured via planning condition prior to the commencement of the Development and implemented throughout the duration of the works.

2.20 Mitigation to be implemented during the operational phase would be secured through planning conditions. Mitigation only includes measures which are necessary to mitigate harm and anything additional to that is a benefit.

Cumulative Effects

2.21 A requirement of the EIA Regulations is to assess cumulative effects. Cumulative effects are generally considered to arise from the combination of effects from the Development and from other existing or approved schemes in its vicinity, acting together to generate elevated levels of effects. The assessment has been informed by paragraph 5(e) of Schedule 4 of the EIA Regulations, which states:

- *'A description of the likely significant effects of the development on the environment resulting from, inter alia:*
- ...
- *(e) the cumulation of effects with other existing and/ or approved projects...'*

2.22 The ES will consider the potential for likely significant effects on the environment resulting from committed developments. Table 2.7 below details the scheme identified nearby the Site to be considered within each ES chapter as confirmed within the Scoping Direction.

Table 2.7: Cumulative Schemes

Site Address and Application Reference Number	Description	Current Status	Distance to and from Site
Land East of Mylett's Hill, Golden Hill, Pembroke, Pembrokeshire Application Reference: 14/0129/PA	New solar park and associated works	Operational	1.6km north
Land at West Farm, Coheston, Pembroke Dock, Pembrokeshire Reference: 12/0050/PA	Construction of a solar photovoltaic park with attendant infrastructure	Operational	3.5km north

Residual Effects

2.23 The likely significant effects on the environment, assuming the successful implementation of mitigation measures proposed, have been identified within each chapter.

Assumptions and Limitations

2.24 The principal assumptions that have been made and any limitations that have been identified in preparing the ES are set out in each technical chapter. General assumptions include the following:

- Assessments assume the baseline conditions at the time of ES preparation (2023-2024) unless otherwise stated in the technical chapter;
- It is assumed that current surrounding land uses do not change, with the exception of the committed and reasonably foreseeable developments identified;

- Assessments are based on published sources of information and primary data collection. Sources are provided as necessary;
- Assessments are based on the description of the Development set out in Chapter 3 Site and Development Description and the anticipated construction methodology and phasing described in Chapter 5 Construction Methodology and Phasing;
- Assessments conclude the “worst case” effects that would arise from the Development as defined by the parameters described in Chapter 3 Site and Development Description; and
- The planning permission, when granted, will contain conditions that will be sufficient to limit the Development to what has been assessed.

Objectivity

- 2.25 The technical studies undertaken within the ES have been progressed in a transparent, impartial and unbiased way with equal weight attached, as appropriate, to beneficial and adverse effects. Where possible, this has been based upon quantitative and accepted criteria together with the use of value judgments and expert interpretations.
- 2.26 The assessment has been explicit in recognising areas of limitation within the ES and any difficulties that have been encountered, including assumptions upon which the assessments are based. Where appropriate, the assessment of significance has been given confidence levels to give a judgement to the likelihood of an effect occurring.