



# Stonestreet Green Solar

## Environmental Statement

### Volume 2: Main Text

### Chapter 6: EIA Methodology

PINS Ref: EN010135

Doc Ref. 5.2

Version 1

June 2024

APFP Regulation 5(2)(a)

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009



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## 6 EIA Methodology

### 6.1 Introduction

6.1.1 This Chapter sets out the scope and methodology which was adopted in the EIA process. It explains how the scope of the EIA was defined, the baseline assumptions, methods used to assess the environmental effects and the general criteria used to evaluate their significance. The methodology applied to each of the technical impacts is set out in each technical chapter (i.e., **ES Volume 2, Chapters 7 to 15 (Doc Ref. 5.2)**).

6.1.2 This Chapter is accompanied by the following:

#### ES Volume 3 - Figures (Doc Ref. 5.3)

- **Figure 6.1:** Cumulative Schemes 0 - 1km;
- **Figure 6.2:** Cumulative Schemes 0 - 4km; and
- **Figure 6.3:** Cumulative Schemes 0 - 10km.

6.1.3 This Chapter is accompanied by the following:

#### ES Volume 4 – Appendices (Doc Ref. 5.4)

- **Appendix 6.1:** List of Cumulative Schemes; and
- **Appendix 6.2:** Cumulative Schemes Correspondance.

### 6.2 Regulatory Requirements and Good Practice

6.2.1 This ES was prepared to comply with the EIA Regulations<sup>1</sup>. The information required for inclusion in an ES is defined by Regulation 14(2)-(4) and Schedule 4 of the EIA Regulations. The ES was also prepared in accordance with *Planning Act 2008: Pre-application stage for Nationally Significant Infrastructure Projects* guidance published by the Department for Levelling Up, Housing and Communities ('DLUHC') in April 2024<sup>2</sup>.

6.2.2 Good practice guidance documents were considered whilst undertaking the EIA including:

- Planning Practice Guidance ('PPG') – Environmental Impact Assessment<sup>3</sup>;
- Guidelines for Environmental Impact Assessment: Institute of Environmental Management and Assessment ('IEMA')<sup>4</sup>;
- Special Report: The State of Environmental Impact Assessment Practice in the UK (IEMA)<sup>5</sup>;
- EIA – Shaping and Delivering Quality Development (IEMA)<sup>6</sup>;
- Delivering Proportionate EIA (IEMA)<sup>7</sup>;
- Planning Inspectorate Advice Note Three: EIA Consultation and Notification<sup>8</sup>;

- Planning Inspectorate Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements<sup>9</sup>;
- Planning Inspectorate Advice Note Nine: Rochdale Envelope<sup>10</sup>;
- Planning Inspectorate Advice Note Eleven: Working with Public Bodies in the Infrastructure Planning Process<sup>11</sup>;
- Planning Inspectorate Advice Note Seventeen: Cumulative Effects Assessment<sup>12</sup>; and
- Topic specific guidance referred to in each technical chapter of this ES where appropriate.

6.2.3 Each technical assessment follows national and local planning policy and guidance as appropriate to their discipline. The following list outlines the key policy documents to which regard was had during the EIA process for all topics:

- National Planning Policy Framework ('NPPF') (2023)<sup>13</sup>;
- Overarching National Policy Statement for Energy (EN-1)<sup>14</sup> ('NPS EN-1');
- National Policy Statement for Renewable Energy Infrastructure (EN-3)<sup>15</sup> ('NPS EN-3'); and
- National Policy Statement for Electricity Networks Infrastructure (EN-5)<sup>16</sup> ('NPS EN-5').

### 6.3 Scope of the EIA

6.3.1 The aim of the EIA scoping process is to identify those environmental topics that are expected to be affected by the development and result in likely significant effects. Once identified, the EIA scoping process informs the extent of survey and assessment requirements for those environmental topics that are to be included within the EIA. Regulation 10(1) of the EIA Regulations allows a person who intends to make an application for a DCO to ask the Secretary of State to state in writing their opinion as to the scope and level of detail of the information to be provided in the ES.

6.3.2 A scoping study was undertaken informed by desk-based research, professional judgement and other information available for the Site, including information obtained from initial on-site surveys.

6.3.3 The issues to be addressed within this ES were identified in the EIA Scoping Report submitted to the Planning Inspectorate in April 2022 (**ES Volume 4, Appendix 1.1: EIA Scoping Report (Doc Ref. 5.4)**). The Planning Inspectorate issued a Scoping Opinion on 30 May 2022 of behalf of the Secretary of State (**ES Volume 4, Appendix 1.2: EIA Scoping Opinion (Doc Ref. 5.4)**). Key issues raised in the Scoping Opinion are summarised in a table at the start of each technical chapter of the ES and have been considered during the EIA process.



6.3.4 In response to the Scoping Opinion, the EIA and this ES include assessments for the environmental topics set out in **Table 6.1** together with those noted below at **Paragraph 6.3.6**. **Table 6.1** sets out where phases of the Project were scoped out.

**Table 6.1: Summary of Topics and Assessment Phases Included within the EIA**

Topic	Construction Phase Assessment	Operational Phase Assessment	Decommissioning Phase Assessment
Chapter 7: Cultural Heritage	Yes	Yes	Yes
Chapter 8: Landscape and Views	Yes	Yes	Yes
Chapter 9: Biodiversity	Yes	Yes	Yes
Chapter 10: Water Environment	Yes	Yes	Yes
Chapter 11: Land Contamination	Yes	Yes	Yes
Chapter 12: Socio-economics	Yes	Yes	Yes
Chapter 13: Traffic and Access	Yes	No	No
Chapter 14: Noise	Yes	Yes	Yes
Chapter 15: Climate Change	Yes	Yes	Yes

6.3.5 The following topics were agreed with the Planning Inspectorate via the Scoping Opinion to be scoped out of further assessment within the ES for all phases of the Project:

- Human Health; and
- Wind Microclimate.

6.3.6 The Scoping Report concluded that several topics did not require a full chapter within the PEIR and this ES because no significant effects were expected to arise. These topics are described in **ES Volume 2, Chapter 16: Other Topics (Doc Ref. 5.2)** and are as follows:

- Glint and Glare;
- Minerals;
- Waste;

- Telecommunications, Television Reception and Utilities; and
- Major Accidents and/or Disasters.

6.3.7 **ES Volume 2, Chapter 16: Other Topics (Doc Ref. 5.2)** also either provides, or signposts to where relevant information requested in the Scoping Opinion is provided in the ES, in relation to:

- Agricultural Land and Soils;
- Air Quality and Dust;
- Vibration;
- Electric, Magnetic and Electromagnetic Fields;
- Lighting; and
- Daylight, Sunlight and Overshadowing.

### Transboundary Effects

6.3.8 As outlined within the Scoping Report, Schedule 4, paragraph 5 of the EIA Regulations requires that the description of the likely significant effects in the ES should cover transboundary effects with European Economic Area States ('EEAS'). The Scoping Report concluded that the Project would not have any significant transboundary effects on any other EEAS. Within the Scoping Opinion, the Planning Inspectorate agreed with the assessment provided within the Scoping Report that concluded the Project was unlikely to have any significant transboundary effects either alone or cumulatively.

6.3.9 The Applicant and design team re-evaluated this position at the ES stage, which reconfirmed that there are no potential transboundary pathways of effect.

## 6.4 Consultation

6.4.1 **ES Volume 2, Chapter 4: Consultation (Doc Ref. 5.2)** provides details of the pre-application statutory and non-statutory consultation process undertaken for the Project.

## 6.5 Design and EIA Interface

6.5.1 The EIA was undertaken in parallel with the design process. In particular, biodiversity, landscape and visual, cultural heritage, drainage and flood risk specialists worked closely with the Applicant and Project design team through an iterative process to avoid, minimise or compensate adverse environmental effects through the Project design. Further information on how environmental issues influenced the Project design is provided in **ES Volume 2, Chapter 5: Alternatives and Design Evolution (Doc Ref. 5.2)**. Opportunities for enhancement, such as incorporating biodiversity features into the design and landscape considerations, were also identified through the EIA process.

## 6.6 Defining the Baseline

### Study Area

- 6.6.1 The study area for each topic was based on the geographical scope of the potential impacts relevant to the topic or the information required to assess the likely significant effects, as well as topic specific guidance and consultation with stakeholders. This is defined in each technical chapter (i.e., **ES Volume 2, Chapters 7 to 15 (Doc Ref. 5.2)**) as the study area varies by topic and between the construction, operation and decommissioning phases in some cases.

### Baseline Conditions and Future Baseline

#### Existing Baseline

- 6.6.2 In order to predict the potential environmental effects of the Project, it is important to determine the baseline environmental conditions that currently exist within the Site and the identified study area, in the absence of any development. Establishing the existing baseline conditions also informed the development of the Project and embedded mitigation measures to avoid or minimise significant effects.
- 6.6.3 Detailed environmental baseline information has been collected and the methodology for the collection process is detailed within each technical chapter of the ES (**ES Volume 2, Chapters 7 – 15 (Doc Ref. 5.2)**). Baseline information has been obtained from various sources including online/digital resources, data searches, desk-based studies, site surveys and stakeholders.

#### Future Baseline

- 6.6.4 The EIA Regulations require the ES to include a description of the future baseline, i.e., the likely evolution of the baseline conditions without implementation of the Project as far as natural changes from the baseline scenario can be assessed with reasonable effort based on the availability of environmental information and scientific knowledge (Schedule 4, paragraph 3 of the EIA Regulations). Future baseline conditions are considered under the 'Baseline Conditions' sections within each technical chapter (**ES Volume 2, Chapters 7 – 15 (Doc Ref. 5.2)**). These are the conditions against which the construction, operational and decommissioning activities are assessed.
- 6.6.5 For most assessments the future baseline will be similar to the present-day baseline. **ES Volume 2, Chapter 13: Traffic and Access (Doc Ref. 5.2)** incorporates trip movements associated with other developments into 2026 as a future baseline year for the assessment of construction phase traffic. The future baseline year of 2026 is also assumed for the assessment of construction traffic in **ES Volume 2, Chapter 14: Noise (Doc Ref. 5.2)**. **ES Volume 2, Chapter 8: Landscape and Views (Doc Ref. 5.2)** includes an assessment at Year 1 and Year 15 in terms of the maturation of vegetation (i.e. 15 years after the operational assessment year).

## Sensitive Receptors

- 6.6.6 As part of the EIA process, the environmental effects of a given development or scheme are typically assessed in relation to sensitive receptors, including human beings (e.g. future site users), built resources (e.g. buildings) and natural resources (e.g. controlled waters). The criteria used for identifying potentially sensitive receptors included:
- Proximity to the Site;
  - Number of individual receptors;
  - Value - the characteristics / rarity and importance of the receptor in terms of ecological, social, cultural, and/or economic value, including legislative / designated status;
  - Presence or absence of impact pathways;
  - Extent and duration of potential exposure to environmental impacts;
  - Vulnerability and ability to respond to change; and
  - Recoverability - the ability of a receptor to be able to return to a state close to that which existed before an activity or event caused damage.
- 6.6.7 Further details on sensitive receptors are provided in the baseline assessment section of the technical chapters (i.e., **ES Volume 2, Chapters 7 to 15 (Doc Ref. 5.2)**). The technical chapters considered both existing and future sensitive receptors, on-site and off-site. A summary of the receptors and their sensitivity is provided in each technical chapter.

## 6.7 Basis of Assessment

- 6.7.1 The assessment of the Project is based on the **Works Plans (Doc Ref. 2.3)**, **Design Principles (Doc Ref. 7.5)**, Order limits, Illustrative Drawings and Plans (see **ES Volume 2, Chapter 3: Project Description (Doc Ref. 5.2)** for further details) and outline management plans (see **Book 7: Other Reports and Management Plans** for further details).

### Rochdale Envelope

- 6.7.2 As outlined within **ES Volume 2, Chapter 3: Project Description (Doc Ref. 5.2)**, a Rochdale Envelope approach was used for the purposes of the EIA to provide flexibility in the ES and the DCO. This is in line with the Planning Inspectorate Advice Note Nine: Rochdale Envelope<sup>9</sup>. The Rochdale Envelope approach involves assessing the maximum (and, where relevant, the minimum) parameters for the Project where flexibility needs to be retained. This approach was considered appropriate as the technologies proposed to be included within the Project are rapidly evolving and flexibility is required in the DCO to take account of changes in technology at the time of construction.
- 6.7.3 It is important that the likely significant effects of the Project and necessary mitigation measures are fully understood for the purposes of decision making. In line with case law and best practice, assessments were based on a cautious 'worst



case' approach. The **Works Plans (Doc Ref. 2.3)** and **Design Principles (Doc Ref. 7.5)** were prepared to provide a level of information which was considered sufficient to enable 'the main' or 'likely significant' effects on the environment to be assessed and the mitigation measures to be described.

- 6.7.4 The **Works Plans (Doc Ref. 2.3)** together with the **Design Principles (Doc Ref. 7.5)** provide the upper, and where relevant minimum, limits and establish a three dimensional ('3D') envelope within which the detailed design can come forward and the Project can be built and operated. The **Design Principles (Doc Ref. 7.5)** correspond to the physical areas and works included on the **Works Plans (Doc Ref. 2.3)** and set out the rules that will control the detailed design and provide guidance on aspects of the intended form and scale of the principal components of the Project.
- 6.7.5 An **Illustrative Layout Plan (Book 2: Illustrative Project Drawings - Not for Approval (Doc Ref. 2.6))** is provided which indicates the likely extent and layout of the key features of the Project. The **Illustrative Layout Plan (Doc Ref. 2.6)** provides a visual representation example of a development that could be delivered within the **Works Plans (Doc Ref. 2.3)** and **Design Principles (Doc Ref. 7.5)**. The **Illustrative Layout Plan (Doc Ref. 2.6)** will enable a robust assessment of likely significant effects to be undertaken within the ES for topics where the nature of the assessment methodology requires a specific level of detail, namely the noise, cultural heritage and landscape and visual assessments.
- 6.7.6 It is important to note that the assessment of environmental effects of the Project was based on the **Works Plans (Doc Ref. 2.3)** and **Design Principles (Doc Ref. 7.5)** and associated control documents as these form the basis for approval. The testing of the **Illustrative Layout Plan (Doc Ref. 2.6)** is supplemental to the 'Rochdale Envelope' (i.e., maximum parameters) assessment which is based on the **Works Plans (Doc Ref. 2.3)** and **Design Principles (Doc Ref. 7.5)**.

## 6.8 Assessment of Effects

### Construction and Decommissioning Phases

- 6.8.1 Construction of the Project is expected to commence in 2026, with completion in 2027. This would represent an indicative build out period of 12 months.
- 6.8.2 Decommissioning of the Project is expected to commence in 2067, with completion in 2068. This would represent an indicative removal period of 12 months.
- 6.8.3 These assumed programme dates may be subject to change although different start / end dates are unlikely to materially alter the ES findings in relation to the likely significant effects or mitigation measures.
- 6.8.4 Each technical assessment in the ES assumed a notional 'likely worst case' scenario with respect to the envisaged construction and decommissioning methods, location (proximity to sensitive receptors) and timing as outlined in **ES Volume 2, Chapter 3: Project Description (Doc Ref. 5.2)**. These assumptions vary between the specific technical assessments. Each individual assessment accounts for a

'hypothetical' construction / decommissioning site that is representative of the 'worst-case' scenario for any given set of receptors, relevant to that particular technical assessment.

6.8.5 The key activities during the construction and decommissioning phases which informed the technical assessments of the ES are described within each chapter as relevant. General commentary on the construction / decommissioning programme and method is provided in **ES Volume 2, Chapter 3: Project Description (Doc Ref. 5.2)**.

6.8.6 The ES is supported by a series of outline management plan documents which will be secured through DCO Requirements to avoid and / or minimise effects during the construction and decommissioning stages of the Project. These are as follows:

- **Outline Construction Environmental Management Plan (Doc Ref. 7.8)** ('Outline CEMP');
- **Outline Construction Traffic Management Plan (Doc Ref. 7.9)** ('Outline CTMP');
- **Outline Landscape and Ecological Management Plan (Doc Ref. 7.10)** ('Outline LEMP');
- **Outline Decommissioning Environmental Management Plan (Doc Ref. 7.12)** ('Outline DEMP');
- **Outline Decommissioning Traffic Management Plan (Doc Ref. 7.13)** ('Outline DTMP');
- **Outline Rights of Way and Access Strategy (Doc Ref. 7.15)** ('Outline RoWAS'); and
- **Outline Battery Safety Management Plan (Doc Ref. 7.16)** ('Outline BSMP').

6.8.7 In addition to the outline management plans and strategies listed in **Paragraph 6.8.6** of this Chapter, an **Archaeology Management Strategy ('AMS') (Doc Ref. 7.17)** is submitted with the DCO Application.

6.8.8 In line with IEMA guidance 'EIA Guide to Shaping Quality Development'<sup>17</sup> (November 2015) best practice, the management plans are defined as 'tertiary' mitigation which is defined (at section C.2) as that which *'will be required regardless of any EIA assessment, as it is imposed, for example, as a result of legislative requirements and / or standard sectoral practices. For example, considerate contractors' practices that manage activities which have potential nuisance effects'*.

6.8.9 The basis of the EIA is, therefore, that this form of mitigation will be delivered.

### Operational Phase

6.8.10 Operational phase effects are the effects that are associated with operational and maintenance activities during the generating lifetime of the Project. This includes the effects of the physical presence of the Project, and its operation, use and maintenance. It is assumed that the Project is fully implemented.

- 6.8.11 The Project is assumed to be complete and fully operational in 2027 and will operate for 40 years. The completed year may be subject to change, however this would not materially alter the ES findings related to the assessment of likely significant effects or mitigation. **Paragraphs 6.6.4 and 6.6.5** describe the approach to the future baseline and assessment years.
- 6.8.12 The ES is supported by a series of outline management plan documents which will be secured through DCO Requirements to avoid and / or minimise effects during the operation and maintenance stage of the Project. These are as follows:
- **Outline LEMP (Doc Ref. 7.10);**
  - **Outline Operational Management Plan ('Outline OMP') (Doc Ref. 7.11);**
  - **Outline Operational Surface Water Drainage Strategy ('Outline OSWDS') (Doc Ref. 7.14);**
  - **Outline RoWAS (Doc Ref. 7.15);** and
  - **Outline BSMP (Doc Ref. 7.16).**
- 6.8.13 As with the management plans for the construction and decommissioning phases, the above management plans are defined as 'tertiary' mitigation and the basis of the EIA is, therefore, that this form of mitigation will be delivered.

## 6.9 Cumulative Effects

- 6.9.1 The EIA Regulations require that, in assessing the effects of a particular development proposal, consideration should also be given to any cumulative effects. Potential cumulative effects are categorised into two types:
- **Intra-project effects:** The combined effects of individual effects resultant from the Project upon a set of defined sensitive receptors, for example, noise, dust and visual effects; and
  - **Inter-project effects:** The combined effects arising from another project(s), which individually might be insignificant, but when considered together, could create a significant cumulative effect.
- 6.9.2 Details on the methodology and approach of the cumulative effects assessment for intra-project effects and inter-project effects of the Project are provided below.

### Intra-Project Effects Assessment Methodology

- 6.9.3 Intra-project effects ('effect interactions') from multiple topics are assessed within **ES Volume 2, Chapter 17: Cumulative Assessment (Doc Ref. 5.2)**. The effect interactions assessment focused on receptors groups that have the potential to be affected by multiple effects from more than one environmental topic in the EIA, as a result of the Project.
- 6.9.4 There is no industry standard approach to the assessment of effect interactions. It is recognised that the Project has the potential to give rise to a variety of impacts upon a number of different receptors, some of which may combine to become

significant effects. As a result, a receptor group based approach was adopted in line with good practice.

- 6.9.5 Based on the findings of the assessments presented in the technical chapters, i.e., **ES Volume 2, Chapters 7 to 16 (Doc Ref. 5.2)**, a qualitative review was undertaken using professional judgement and experience to determine the potential for effect interactions and combined effects. This considered construction, operation and decommissioning stages.
- 6.9.6 The methodology used for the assessment of effect interactions, as well as the results of the assessment, is set out in **ES Volume 2, Chapter 17: Cumulative Assessment (Doc Ref. 5.2)**.

### Inter-Project Effects Assessment Methodology

- 6.9.7 The inter-project effects ('cumulative effects') assessment is important to ensure that the combined effects of the Project, together with those of other developments schemes relevant to the Site, are fully understood.
- 6.9.8 There is currently no guidance on how to define an appropriate study area for considering cumulative effects. The Planning Inspectorate Advice Note Seventeen<sup>11</sup> on the assessment of cumulative effects identifies a four-stage approach to identifying which reasonably foreseeable developments in the vicinity of the Site should be subject to assessment.
- 6.9.9 The cumulative effects assessment contained within this EIA adopted that approach, as appropriate, and the methodology for the assessment of cumulative effects with other developments is as follows:
- Stage 1 – Establishing the long list of 'other existing development and/or approved development';
  - Stage 2 – Establishing a shortlist of 'other existing development and/or approved development';
  - Stage 3 – Information gathering; and
  - Stage 4 – Assessment.

#### Stage 1: Establishing the long list of 'other existing development and/or approved development'

- 6.9.10 A review of other developments was undertaken which encompassed a Zone of Influence ('Zoi') of 15km from the boundary of the Order limits. An initial planning search was undertaken of the ABC, KCC and FHDC online planning portals and the National Infrastructure Planning portal to establish the 'Initial Long List' of other developments to be considered. Screening criteria were developed to identify a 'Focused Long List' from the 'Initial Long List' to identify which 'other developments' should be subject to assessment. In line with Advice Note Seventeen, paragraph 1.4, *'other existing development and/or approved development' is taken to include existing developments and existing plans and projects that are 'reasonably foreseeable'*

- 6.9.11 The following screening criteria were developed to identify which other developments should be subject to assessment and included in the Focused Long List and taken forward to Stage 2. These are outlined below:
- a) Submitted applications not yet determined or development currently under construction that meet one of (c) to (h);
  - b) Approved applications under the PA 2008 or other regimes in respect of which the planning consent has not yet been implemented (covering the past five years and taking account of those that received planning consent over three years ago and are still valid but have not yet been implemented) that meet one of (c) to (h);
  - c) A National Infrastructure Planning Project on the Planning Inspectorate's Programme of Projects within 10km of the Order limits;
  - d) EIA development within 10km of the Order limits in respect of which a positive EIA screening opinion has been issued and/or the submission of a Scoping Report;
  - e) Development whether EIA or non-EIA identified in the relevant Development Plan such as Allocated Sites and within 4km of the Order limits;
  - f) Other EIA or non-EIA solar development, excluding residential roof mounted solar developments, within 4km of the Order limits;
  - g) Other EIA or non-EIA schemes that did not meet the above criteria but which a statutory stakeholder specifically requested to be included; and
  - h) Other development that introduces sensitive receptors within close proximity to the Site boundary (but is not EIA development).
- 6.9.12 The above screening criteria and a long list of 'other developments' included in the assessment of cumulative effects was included in Table 3.1 of the PEIR Addendum. No comments were received on this as part of the 2023 Statutory Consultation. The long list included in the PEIR Addendum was updated and shared with KCC, ABC and FHDC in December 2023 (**ES Volume 4, Appendix 6.2: Cumulative Scheme Correspondence (Doc Ref. 5.4)**).
- 6.9.13 ABC and KCC confirmed in March 2023 they had no comments on the cumulative list other than observations on project status. No response was received from FHDC. Relevant correspondence is provided in **ES Volume 4, Appendix 6.2: Cumulative Scheme Correspondence (Doc Ref. 5.4)**. The long list was further reviewed and updated for status of projects in May 2024. No new schemes were identified.
- 6.9.14 **ES Volume 4, Appendix 6.1: List of Cumulative Schemes (Doc Ref. 5.4)** provides the 'Focused Long List' of 36 'other developments' to be taken forward to Stage 2 and considered within the cumulative assessment within the ES for the Project. **ES Volume 3, Figures 6.1 to 6.3 (Doc Ref. 5.3)** show the location of the other developments ('cumulative schemes') and their position in relation to the Project.



- 6.9.15 Cumulative scheme ID No. 9 East Stour Solar Farm (Ref: 22/00668/AS) comprises a proposed solar farm with a generating capacity of up to 49.9MW adjacent to the Order limits. The planning application seeking consent for this scheme was refused by ABC on 29 April 2024. However, as at the date of writing, the period during which an appeal could be brought against that refusal had not yet expired. This scheme is therefore still considered as a cumulative scheme as a worst-case assessment.

### Stage 2 – Establishing a shortlist of ‘other existing development and/or approved development’ for assessment

- 6.9.16 Stage 2 of the cumulative effects assessment involved the ‘Focused Long List’ within **ES Volume 4, Appendix 6.1: List of Cumulative Schemes (Doc Ref. 5.4)** being reviewed by the technical specialists. Each technical topic established a ‘Short list’ for assessment within their chapter based on:
- The developments that fall within the Zol for the technical assessment of effects scoped into the ES;
  - The potential for any temporal overlap between the Project and other developments during construction, operation or decommissioning; and
  - The scale and nature of the developments (e.g., larger developments are likely to result in more and greater effects).
- 6.9.17 The other developments included within **ES Volume 4, Appendix 6.1: List of Cumulative Schemes (Doc Ref. 5.4)** informed the ‘Shortlist’ presented within **ES Volume 2, Chapters 7 to 15 (Doc Ref. 5.2)**.

### Stage 3 – Information gathering

- 6.9.18 Once each technical topic had established their ‘Shortlist’ for assessment, information relating to the short listed developments was gathered from the Planning Inspectorate or the relevant local planning authority’s planning portals. Typically, information gathered included:
- Design information;
  - Programme information relating to construction, operation and / or decommissioning; and
  - Environmental assessments and reports that set out the baseline and likely effects from the other development.

### Stage 4 – Assessment

- 6.9.19 Following the gathering of information on the other developments to be considered within a technical topic, the final stage is the assessment of those other developments within the technical chapters of the ES. The assessments consider the potential for cumulative effects to be generated with the Project, if effects that require mitigation are identified, additional mitigation is identified, and the final likely residual cumulative effect established.

## 6.10 Identifying and Determining the Significance of Environmental Effects

### Identifying Impacts and Effects

6.10.1 The Project has the potential to create a range of 'impacts' and 'effects' on the physical, biological and human environment. The definitions of impact and effect used in this assessment are as follows:

- Impact - a change that is caused by an action. For example, excavation works would lead to a removal of underlying soils and lithology (impact). Impacts can be classified as direct, indirect, secondary, cumulative and inter-related. They can be either positive (beneficial) or negative (adverse); and
- Effect - is used to express the consequence of an impact. For example, removal of soils and lithology (impact) has the potential to disturb underlying buried heritage sensitive receptors (effect).

6.10.2 For consistency, the findings of the various studies undertaken as part of the EIA adopted the following terminology to express the nature of the effect:

- Adverse: Detrimental or negative effect to an environmental resource or receptor;
- Negligible: No significant effect to an environmental resource or receptor; and
- Beneficial: Advantageous or positive effect to an environmental resource or receptor.

6.10.3 Following their identification, significant beneficial or adverse effects were classified based on their nature and duration as follows:

- Temporary: Effects that persist for a limited period only;
- Permanent: Effects that result from an irreversible change to the baseline environment (e.g. land-take) or which will persist for the foreseeable future;
- Direct: Effects that arise from the effect of activities that form an integral part of the scheme (e.g. direct employment and income generation);
- Indirect: Effects that arise from the effect of activities that do not explicitly form part of the scheme (e.g. off-site infrastructure upgrades to accommodate the Project);
- Secondary: Effects that arise as a consequence of an initial effect of the Project (e.g. induced employment elsewhere); and
- Cumulative: Effects that arise from a combination of different effects at a specific location or the interaction of different effects over different periods of time.

6.10.4 The duration of temporary effects comprises:

- Short-term (a period of up to 1 year);
- Medium-term (a period of between 1 year and up to 5 years); and
- Long-term (a period of more than 5 years).

## Defining Magnitude of Impact and Sensitivity of Receptor

### Magnitude of Impact

6.10.5 Magnitude of impact was assigned, taking into account the spatial extent, duration, frequency and reversibility of the impact, where relevant. Scales of magnitude of impact were defined in each technical chapter of this ES where possible, otherwise professional judgement was applied to the following scale:

- Very Low - very small-scale or barely discernible changes over a small part of the Project area and potentially beyond to key characteristics or features of the particular environmental aspect's character, composition or attributes, approximating to a 'no change' situation;
- Low - noticeable but small-scale changes over part of the Project area and potentially beyond to key characteristics or features of the particular environmental aspect's character, composition or attributes;
- Medium - medium-scale loss or alteration over the majority of the Project area and potentially beyond to key elements; and
- High - total loss or large-scale alteration over the whole Project area and potentially beyond (such as off-site) to key elements or features of the particular environmental aspect's character, composition or attributes.

### Sensitivity of Receptor

6.10.6 Sensitive receptors are defined as the physical or biological resources or user groups that would be affected by the potential impacts of the Project. The identification of sensitive receptors was informed by baseline studies carried out as part of the EIA. The sensitivity of a receptor was based on the relative importance of the receptor, taking into account:

- Legislative / designated status;
- The number of individual receptors;
- The characteristics / rarity; and
- Ability to tolerate / absorb change.

6.10.7 A summary of sensitive receptors is provided in the baseline assessment sections of the ES technical chapters. Sensitivity was defined within each technical assessment according to the following scale:

- Very Low - The receptor / resource is tolerant of change without detriment to its character, or does not make a significant contribution to local character or distinctiveness and is not designated;
- Low - The receptor / resource has some tolerance of change without detriment to its character, or only possesses characteristics which are locally significant, not designated or only designated at a district or local level;
- Medium - The receptor / resource has low capacity to absorb change without significantly altering its present character, or contributes significantly to the distinctiveness and character of the site (for example designated features of

regional or county importance); and

- High - The receptor / resource has very little ability to absorb change without fundamentally altering its present character, or possesses key characteristics which contribute significantly to the distinctiveness, rarity and character of the site (for example designated features of international or national importance).

### Evaluation of Significance

- 6.10.8 The assessment of environmental effects was undertaken in accordance with definitive standards and legislation where such material was available. In cases where it was not possible to quantify effects, qualitative assessments were carried out and were based on the available knowledge of the Site and potential effect, alongside professional judgement. Where uncertainty exists, this was detailed in the 'Assumptions and Limitations' under 'Assessment Methodology' section in the technical chapters.
- 6.10.9 Each technical chapter provides the specific criteria, including sources and justifications, for quantifying the level of effect significance. Where possible, this was based upon quantitative and accepted criteria, together with the use of value judgements and expert interpretations to establish to what extent an effect is significant.
- 6.10.10 There is no statutory definition of what constitutes a significant effect and guidance is of a generic nature. It is widely recognised by EIA practitioners that 'significance' reflects the relationship between the magnitude of an impact and the sensitivity (or value) of the affected resource or receptor. Statutory designations and any potential breaches of environmental law take precedence in determining significance because the protection afforded to a particular receptor or resource is already established as a matter of law, rather than requiring a project or site-specific evaluation.
- 6.10.11 Specific criteria for the assessment of each potential effect gave due regard to the following:
- Extent and magnitude of the effect;
  - Effect duration (whether short, medium or long term);
  - Nature of effect (whether direct or indirect, reversible or irreversible);
  - Performance against environmental quality standards;
  - Whether the effect occurs in isolation, is cumulative or interactive;
  - Sensitivity of the receptor; and
  - Compatibility with environmental policies.
- 6.10.12 Where adverse or beneficial effects were identified, these were generally assessed against the scale set out in **Table 6.2**.

**Table 6.2: Description of the Level of Significance of Environmental Effects**

Level of Significance	Description
Major	Large effects (by extent, duration or magnitude) and/or a highly pronounced change in environmental conditions. Effects, both adverse and beneficial, which are likely to be important considerations at a regional level because they contribute to achieving regional or council wide objectives, or, could result in exceedance of statutory objectives and/or breaches of legislation.
Moderate	Intermediate effects (by extent, duration or magnitude) and/or pronounced change in environmental conditions. Effect that is likely to be an important consideration at a local level.
Minor	Noticeable but small effect or change in environmental conditions. These effects may be raised as local issues but are unlikely to be of importance in the decision-making process.
Negligible	No discernible change or neutral effect on environmental conditions. An effect that is likely to have a negligible influence, irrespective of other effects.

6.10.13 The matrix presented in **Table 6.3** was generally applied throughout this ES to determine the significance of effects. Where different assessment criteria were used, this is clearly stated within the technical chapter.

**Table 6.3: Significance of Effects Matrix**

Sensitivity / Value of Receptor	Magnitude of Effect			
	High	Medium	Low	Very Low
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

6.10.14 Following the classification of an effect, clear statements will be made within the topic chapters as to whether that effect is significant or not significant. As a rule, major and moderate effects are generally considered to be significant (as shown by the shaded cells in **Table 6.3** above), whilst minor and negligible effects are considered to be not significant. However, professional judgement will be applied, including taking account of whether the effect is permanent or temporary, its duration / frequency, whether it is reversible, and / or its likelihood of occurrence. Generic definitions for the classification of effects are shown in **Table 6.2**.



6.10.15 Where the approach to the evaluation of the significance of the effects within a technical topic differed from that outlined above, for example, because of specific guidance, this was clearly described in the technical chapter of this ES.

## 6.11 Mitigation and Residual Effects

### Mitigation

6.11.1 The development of mitigation measures is an integral part of EIA. Mitigation measures are set out in each technical chapter where significant effects are identified, with the aim of avoiding, reducing, or offsetting for potential adverse effects and maximising potential beneficial effects. In each technical chapter, the technical specialists identified appropriate mitigation measures based on their assessment of potential significant effects.

6.11.2 The following mitigation measures were considered where relevant:

- Primary mitigation measures - those which are modifications to the location or design of the Project during the pre-application phase that are 'designed in' or an inherent part of the Project and do not require additional action to be taken;
- Secondary / additional mitigation measures - those that require further action to be taken to achieve the anticipated outcome or those that require a controlling mechanism or legal undertaking to be implemented, but are under the control of the Applicant, ABC / KCC or statutory bodies, e.g. DCO Requirement; and
- Tertiary mitigation measures – those that would occur notwithstanding the EIA to meet with legislative requirements or standard practices, e.g. construction mitigation with a high degree of certainty over delivery, e.g. measures to be included in the CEMP.

### Embedded Mitigation

6.11.3 The basis of the EIA and the assessments within the technical chapters of this ES is that both primary and tertiary mitigation will be delivered, and they are considered to comprise 'Embedded Mitigation' for the EIA. The Embedded Mitigation was taken into account when determining whether there would be any likely significant effects. If likely significant effects were identified after the Embedded Mitigation was taken into account, secondary mitigation was considered where necessary, appropriate and feasible.

### Residual Effects

6.11.4 Residual effects are those that remain following the consideration of mitigation within the assessment (i.e., once all Embedded Mitigation and secondary mitigation is taken into account). When applying the matrix set out in **Table 6.3**, these are defined as either 'significant' (i.e., moderate or major residual effect) or 'not significant' (i.e. minor residual effect or negligible).

## 6.12 ES Chapter Structure

6.12.1 **ES Volume 2, Chapters 7-14 (Doc Ref. 5.2)** follow the same structure for ease of reference, as outlined below:

- Introduction;
- Legislation, Policy and Guidance;
- Stakeholder Engagement;
- Assessment Methodology (including Assumptions and Limitations);
- Baseline Conditions;
- Embedded Design Mitigation;
- Assessment of Effects;
- Additional Mitigation, Monitoring and Enhancement Measures;
- Residual Effects;
- Cumulative Effects;
- Summary; and
- References.

6.12.2 **ES Volume 2, Chapter 15: Climate Change (Doc Ref. 5.2)** follows a unique structure as it is split into Part A: Greenhouse Gas Assessment and Part B: Climate Change Resilience Assessment. **ES Volume 3, Chapter 16: Other Topics (Doc Ref. 5.2)** also follows a different structure as it covers a number of topics.

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