

## 2 EIA METHODOLOGY

### 2.1 INTRODUCTION

Environmental Impact Assessment (EIA) is a process aimed to ensure that permissions for particular types of developments are granted only after assessment of the likely significant environmental effects has been undertaken. The assessment must be carried out following consultation with statutory consultees, other interested bodies, and members of the public. This Chapter of the Environmental Statement (ES) draws on the assessment and findings of the EIA and describes the EIA process for the Retford Circular Economy Project (The Proposed Development).

This chapter of the ES is supported by the following figures provided in **Volume 2**:

- Figure 2.1: Cumulative Developments

### 2.2 EIA PROCESS

EIA is a process undertaken to identify and evaluate the likely significant effects of a proposed development on the environment and to identify measures to avoid, mitigate or manage any significant adverse effects.

The requirement of the European Council Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment, is transposed into law by The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended) (the EIA Regulations).

Certain types of development require an EIA:

- For development described in Schedule 1 of the EIA Regulations ("Schedule 1 development") EIA is mandatory; and
- For developments of a type described in Schedule 2 of the EIA Regulations ("Schedule 2 development") EIA may be required if the development has the potential to give rise to 'significant' environmental effects by virtue of its nature, size or location.

The Proposed Development falls within Schedule 1 of the EIA Regulations, under Part 19 1.13 'Quarries [and open-cast mining] where the surface of the site exceeds 25 hectares', and therefore EIA is required. To support the Application an ES (this document) is provided.

As prescribed in the EIA Regulations, the EIA as reported in the ES, must include a description of the proposed Development, a description of reasonable alternatives, baseline information, a description of the likely significant effects of the Proposed Development, and mitigation measures (including measures to avoid, prevent or reduce, and if possible, offset likely significant effects) amongst other factors. It is therefore necessary for the ES to be appropriately and clearly defined to ensure that any likely significant effects are described and assessed.

### 2.3 EIA METHODOLOGY

The ES Report has been prepared following a systematic approach to EIA and project design. The process of distinguishing environmental effects is iterative and cyclical, running concurrently with the design process, whereby the design of the Proposed

Development is refined in order to avoid or reduce potential adverse environmental effects using mitigation as necessary.

The EIA process follows a number of stages broadly in line with the following:

- Site selection and feasibility;
- Screening – to determine if an EIA is required;
- Pre-application consultation with statutory and non-statutory consultees;
- Scoping – to identify the parameters of the EIA assessment issues on which the EIA should focus;
- Baseline studies – to establish the current environmental conditions at the Site;
- Identification of potential environmental effects, including cumulative effects;
- Mitigation to avoid or reduce the effects through iterative design process;
- Assessment of residual effects;
- Preparation of an ES;
- Submission of an ES;
- Consideration of application and environmental information by the Local Authority (Nottingham County Council in this instance) and other consultees;
- Determination of application; and
- Implementation and monitoring.

This ES has been prepared in accordance with the EIA Regulations and includes the required information.

To design out some significant effects, an iterative design process has been utilised, whereby site-specific constraints and design criteria have been collated to guide the location of the Proposed Development's infrastructure. In addition, parts of the Site have been deliberately left undeveloped in order to avoid significant impacts and with regard to the Proposed Development through the use of mitigation, to reduce or remove significant adverse effects.

The iterative design process has taken account of comments made during consultation, including in response to the Scoping Opinion. The ES describes how the design of the Proposed Development has been influenced by such comments. Refer to **Chapter 4 Site Selection and Consideration of Alternatives**.

In order to maintain flexibility in the design, the assessment has followed the principles of the 'Rochdale Envelope' approach to enable the Proposed Development to be consented as described by ranges of parameter values, rather than fixed parameter values e.g., using worst case or conservative scenarios. The Rochdale Envelope approach has been successfully adopted in the consenting of a wide range of developments as it provides flexibility in design where details of the whole project are not available when the application is submitted, while ensuring the impacts of the final development are fully assessed during the EIA process<sup>i</sup>. The Proposed Development has a 22-year operational period, which includes for a phased approach of extraction followed by restoration. By using this approach, it allows flexibility within the design but also ensures a robust and thorough EIA be undertaken. These parameters have been considered in detail by technical authors in the ES to ensure that the realistic worst-case effects of the Proposed Development are assessed for each potential receptor.

## 2.4 TECHNICAL ASSESSMENTS

Each of the technical assessments contained in **Chapters 7 to 16** of this ES follows a systematic approach with the main steps as follows:

- Description of baseline conditions;

- Prediction of likely effects including cumulative effects;
- Assessment of likely effects;
- Identification of appropriate mitigation measures, including design changes; and
- Assessment of residual (likely) environmental effects.

Each technical chapter of the ES is broadly structured as follows and where this differs it is stated in the relevant section of this ES:

- Introduction;
- Assessment methodology and significance criteria;
- Baseline conditions;
- Development design mitigation;
- Assessment of likely effects;
- Mitigation measures and residual effects;
- Cumulative effects assessment;
- Summary of likely effects; and
- Statement of significance.

The assessment has been based on a number of related activities, as follows:

- Consultation with statutory and non-statutory consultees throughout the application process;
- Consideration of relevant local, regional and national planning policies, guidelines and legislation relevant to EIA;
- Consideration of technical standards for the development of significance criteria;
- Review of secondary information, previous environmental studies and publicly-available information and databases;
- Physical surveys and monitoring;
- Desk-top studies;
- Computer modelling, where relevant;
- Reference to current legislation and guidance; and
- Expert opinion.

#### **2.4.1 Introduction, Assessment Methodology and Significant Criteria**

Each technical assessment sets out the relevant legislation, policy and guidance, together with the scope and methodology used to conduct the assessment of potential effects, including the criteria that is used to establish which effects are significant. Where a level of significance is attributed to an effect, this is based on technical guidance and professional judgement, informed by consideration of the sensitivity of the receptor and the degree of the effect. The methodology seeks to ensure transparency in the assessment.

This section also sets out the scoping requirements and pre-application consultation responses that form the framework and scope of the specialist assessment work for the topic.

#### **2.4.2 Description of Baseline Conditions**

To evaluate the potential environmental effects, the existing environmental conditions were recorded through field and desktop research as required. Prior to any fieldwork studies, desktop studies were undertaken to gain a preliminary understanding of the study area. Where appropriate and required, site-specific baseline field surveys have been undertaken by experienced professionals to provide an understanding of the current condition of the Site and the surrounding area.

This formed the baseline, alongside a prediction of these conditions into the future. Such predictions can involve a high number of variables and are subject to large uncertainties. In some cases, the current baseline condition has been assumed to remain unchanged throughout the timeframe of the Proposed Development. The baseline has been used to assess the sensitivity of receptors within the study areas.

The approach to describing baseline conditions is set out in each relevant technical chapter. Baseline information is used to inform the layout of the Proposed Development. From baseline information, constraints have been identified and considered as part of the design process. Further detail on the design process adopted for the Proposed Development is detailed in **Chapter 4 – Site Selection and Consideration of Alternatives**, and **Chapter 5 – Project Description and Development Design**.

### 2.4.3 Assessment of likely Effects

The prediction of potential significant effects covers the three phases of the Proposed Development, construction (including pre-construction), operation (includes phased extraction and phased restoration) and decommissioning, as different environmental effects are likely to arise during the different stages. The effects during construction and decommissioning are generally considered to be short term effects, and those arising as a result of the operation of the Proposed Development are generally considered to be long term effects. Each technical assessment considers the nature of effects and includes cumulative effects with other developments where appropriate.

Following identification of potential environmental effects, the baseline information has been used to predict changes to existing conditions and an assessment of these changes undertaken.

The significance of effects resulting from the Proposed Development is determined through a combination of the sensitivity of the receiving environment (the sensitivity) and the predicted degree of change (the magnitude) from the baseline state.

### 2.4.4 Sensitivity of Receptors

Environmental sensitivity may be categorised by multiple factors, such as the presence of rare or endangered species, transformation of natural landscapes, soil quality and land-use etc. The initial assessment, consultation and scoping stages identified these factors along with the implications of the predicted changes.

The sensitivity classification of the receiving environment varies between the different technical areas of assessment e.g., landscape and visual, ecology, noise etc. Table 2.1 details a general framework for determining the sensitivity of receptors; however, each technical assessment specifies their own appropriate sensitivity criteria that has been applied during the EIA and these details are provided in each technical chapter.

**Table 2.1 Framework for Determining Sensitivity of Receptors**

Sensitivity of Receptor	Definition
Very High	The receptor has little or no ability to absorb change without fundamentally altering its present character, is of very high environmental value, or of international importance.
High	The receptor has low ability to absorb change without fundamentally altering its present character, is of high environmental value, or of national importance.
Medium	The receptor has moderate capacity to absorb change without significantly altering its present character, has some environmental value, or is of regional importance.

Sensitivity of Receptor	Definition
Low	The receptor is tolerant of change without detriment to its character, is of low environmental value, or local importance.
Negligible	The receptor is resistant to change and is of little environmental value.

#### 2.4.5 Magnitude of Effect

For the purposes of environmental assessment, the magnitude of an 'effect' is generally dependent on the degree to which the change affects the feature or asset, from a fundamental, permanent, or irreversible change that changes the character of the feature or asset, to barely perceptible changes that may be reversible. Magnitude would also encompass the certainty of whether an impact would occur. General criteria for assessing the magnitude of an effect are presented in **Table 2.2**. Each technical assessment has applied their own appropriate magnitude of effects criteria during the EIA, with the details provided in the relevant EIA chapter.

**Table 2.2 Framework for Determining Magnitude of Effects**

Magnitude of Effects	Definition
High	A fundamental change to the baseline condition of the asset, leading to total loss or major alteration of character.
Medium	A material, partial loss or alteration of character.
Low	A slight, detectable, alteration of the baseline condition of the asset.
Negligible	A barely distinguishable change from baseline conditions.

If effects of zero magnitude (i.e., none / no change) are identified, this will be made clear in the assessment.

#### 2.4.6 Significance of Effect

The sensitivity of the asset and magnitude of the predicted impacts has been used as a guide, in addition to professional judgement, to assess the level of effects. **Table 2.3** summarises guideline criteria for assessing the significance of effects.

**Table 2.3 Framework for Assessment of the Significance of Effects**

Magnitude of Effect	Sensitivity of Resource or Receptor				
	Very High	High	Medium	Low	Negligible
High	Major	Major	Moderate	Moderate	Minor
Medium	Major	Moderate	Moderate	Minor	Negligible
Low	Moderate	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Minor	Negligible	Negligible	Negligible

Major or moderate effects are considered to be 'significant' in the context of the EIA Regulations and are shaded in light grey in the above table.

Zero magnitude effects upon a receptor will result in no effect, regardless of sensitivity.

This ES generally follows the above principles in relation to the identification of significant effects; however, some technical assessments may adopt a variation from this process.

The assessment criteria used to determine effects and whether they are significant are made explicit in each technical assessment chapter within this EIA.

### 2.4.7 Mitigation Measures

As discussed in Section 2.3, an iterative approach to design and mitigation was adopted in the development of the design for the Proposed Development. This approach followed the guidance prescribed in The Institute for Environmental Management and Assessment (IEMA) EIA Guide to Delivering Quality Development Report<sup>1</sup>. The approach has taken account of potentially significant effects and sought through avoidance or minimisation to mitigate them throughout the design stage. This is referred to within this ES as 'embedded design', i.e., mitigation that is embedded within the project design, and includes best practice as well as design features.

The assessment also adheres to the mitigation hierarchy identified in Planning Advice Note (PAN) 1/2017, which provides a hierarchical strategy of avoidance, reduction and remediation that seeks:

- First to avoid potential effects;
- Then to reduce those which remain; and
- Lastly, where no other measures are possible, to propose compensatory measures.

Appropriate mitigation measures are discussed within each technical chapter as relevant. In some cases, in addition to mitigation measures, chapters may propose enhancement measures to provide improvements over the existing baseline conditions.

The residual effects of the Proposed Development are those that remain, assuming successful implementation of the identified mitigation measures.

Residual effects are identified in each technical assessment and whether any residual effects are significant or not in terms of the EIA Regulations.

### 2.4.8 Cumulative Effects Assessment

In accordance with the EIA Regulations, the assessment has considered 'cumulative effects'. By definition, these are effects that result from incremental changes caused by past, present or reasonably foreseeable developments in combination with the assessment of the Proposed Development. For the cumulative assessment, the combined effects of several developments in isolation may be insignificant but cumulatively when considered with other developments may have a significant effect.

Cumulative assessment addresses the combined effects from the addition of the Proposed Development to a baseline of identified developments on landscape and visual, hydrology, ecology, ornithology, noise, air quality, cultural heritage, traffic and transport, recreation and other impacts. **Table 2.4** below shows the developments which have been taken into consideration in this ES. The location of the developments in relation to the Site are shown in **Figure 2.1**.

**Table 2.4 Committed Developments under consideration**

Development name and type	Status of Development	Approximate Distance and orientation to site (km)
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<sup>1</sup> IEMA (2016) Environmental Management and Assessment Guide to: Delivering Quality Development [Online] Available at: <https://www.iema.net/document-download/7014> (Accessed 12/12/2021)

Land North of Chainbridge Road Lound Nottinghamshire, Lake dredging operations	Approved	1.09km north of Site
Land West of Great North Road Ranskill Retford Nottinghamshire, Updated application detail for the erection of 27no dwellings	Approved	5.28km northwest of the Site
Tiln Farmland Tiln Lane Retford Nottinghamshire, Installation and Operation of a Solar Farm with all Associated Works, Equipment and Necessary Infrastructure	Approved	1.2km east of the Site
Land North of Bigsby Road Retford Nottinghamshire- erect 171 dwellings	Approved	3.04 km southeast of the Site
Land Adjacent to Bellmoor Farm Lound Low Road Sutton Cum Lound Retford Nottinghamshire DN22 8SD, erection of 4 holiday lodges and associated infrastructure	Planning application submitted 20th December 2022 (resubmission of a 2018 planning permission)	0.1km west of site
Local Plan – Site HS7, Trinity Farm, Retford. Phase 1 comprising 196 dwellings and 11.11 ha of employment/ employment generating uses	Approved	0.38km southwest of site
Local Plan – Site HS13	Approved	4.0km to south of the site

Other developments which may come forward in the future, but do not currently have sufficient information available in relation to their likely effects to make an informed cumulative assessment (e.g., those within scoping), are not considered in detail in this ES. This Statement and **Table 2.4** are accurate at the time of writing in January 2023.

Consideration of cumulative effects has been undertaken for all technical assessments. Where no cumulative effects are likely, this is stated.

#### 2.4.9 Statement of Significance

Following the identification of cumulative effects, each Chapter presents a Statement of Significance. Effects are considered to be significant for the purposes of the EIA Regulations where the effect is classified as being of 'major' or 'moderate' significance.

## 2.5 THE ES

The information that an Applicant is required to submit as part of the EIA process is presented in this ES. The preparation and production of this ES has been conducted in accordance with relevant regulations and good practice guidance. Relevant legislation, policy and guidance are referred to in each of the technical assessments within the ES. The overarching regulation, policy and guidance documents that have been used in preparing this EIA Report are:

- The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (SI 2017/571);
- PPG: Environmental Impact Assessment, last updated 13<sup>th</sup> May 2020<sup>2</sup>; and
- Guidelines for Environmental Impact Assessment (Institute of Environmental Management and Assessment).

The ES Report includes chapters covering the following areas, supported by associated figures and Technical Appendices:

- **Chapter 1 – Introduction;**
- **Chapter 2 – Environmental Impact Assessment;**
- **Chapter 3 – Consultation;**
- **Chapter 4 – Site Location and Description;**
- **Chapter 5 – Project Description and Development Design;**
- **Chapter 6 – Legislative and Planning Policy Context;**
- **Chapters 7 - 16 – Technical EIA Chapters;**
- **Chapter 17 – Interaction and Accumulation of Effects; and**
- **Chapter 18 – Conclusions**

In summary, this ES conveys the findings of the assessment of the potential significant environmental effects of the Development during construction, operation, restoration, and decommissioning. Each technical chapter provides a description of the baseline environmental conditions specific to the relevant topic and assesses the potential environmental impacts (positive or negative) due to the Proposed Development in line with the EIA methodology. This includes a description of any proposed mitigation or enhancement measures and a statement of predicted residual impacts.

## 2.6 ASSUMPTIONS AND LIMITATIONS OF THE EIA

A number of assumptions have been made during preparation of this ES as set out below. The assumptions are:

- The principal land uses adjacent to the Site remain as they are at the time of the submission of the application, except in cases where permission has already been granted for development. In these cases, it is assumed that the approved development will take place, and these have been treated as contributing to “cumulative” effects; and
- Information provided by third parties, including publicly available information and databases is correct at the time of submission.

The EIA has been subject to the following limitations:

- Baseline conditions are accurate at the time of the physical surveys but due to the dynamic nature of the environment, conditions may change during the site preparation, construction and operational phases; and
- The assessment of cumulative effects has been reliant on the availability of known information relating to those developments as highlighted in **Table 2.4** as of January 2023.

Assumptions specific to certain environmental aspects are discussed in the relevant Chapters of this EIA Report.

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<sup>i</sup> [IEMA.net/articles/using-the-rochdale-envelope](https://www.iema.net/articles/using-the-rochdale-envelope)

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<sup>2</sup> <https://www.gov.uk/guidance/environmental-impact-assessment>