2.0 SCOPE AND METHODOLOGY

2.1 INTRODUCTION

WSP Ireland Consulting Ltd ('WSP') have been commissioned to prepare an Environmental Impact Assessment Report (EIAR) to assess the environmental impacts of a proposed soil recovery facility at Kilmartin, Coynes Cross, Co. Wicklow (the 'Proposed Development'). This document comprises an Environmental Impact Assessment Report (EIAR), which presents the methodology used and the findings of the technical assessments undertaken as part of the EIA process. It is to be submitted to An Coimisiún Pleanála ('ACP' or the 'the Commission'), in order to assist the Commission in its own EIA for the Proposed Development.

The Proposed Development comprises the development and operation of a soil recovery facility. This will require the importation of approximately 2,160,000 tonnes of soil / stone / construction and demolition (C&D) waste to the Site. This material placed in a natural topographic depression (i.e. a valley) at the site. The operation of the soil recovery facility will require the installation and maintenance of temporary facilities (see Chapter 3.0: Project Description for details).

The Application Site to which this EIAR relates is located in the Electoral Division of Newcastle (Greystones Lower Electoral Division), in the administrative area of Wicklow County Council in Co. Wicklow (see Figure 2-1).

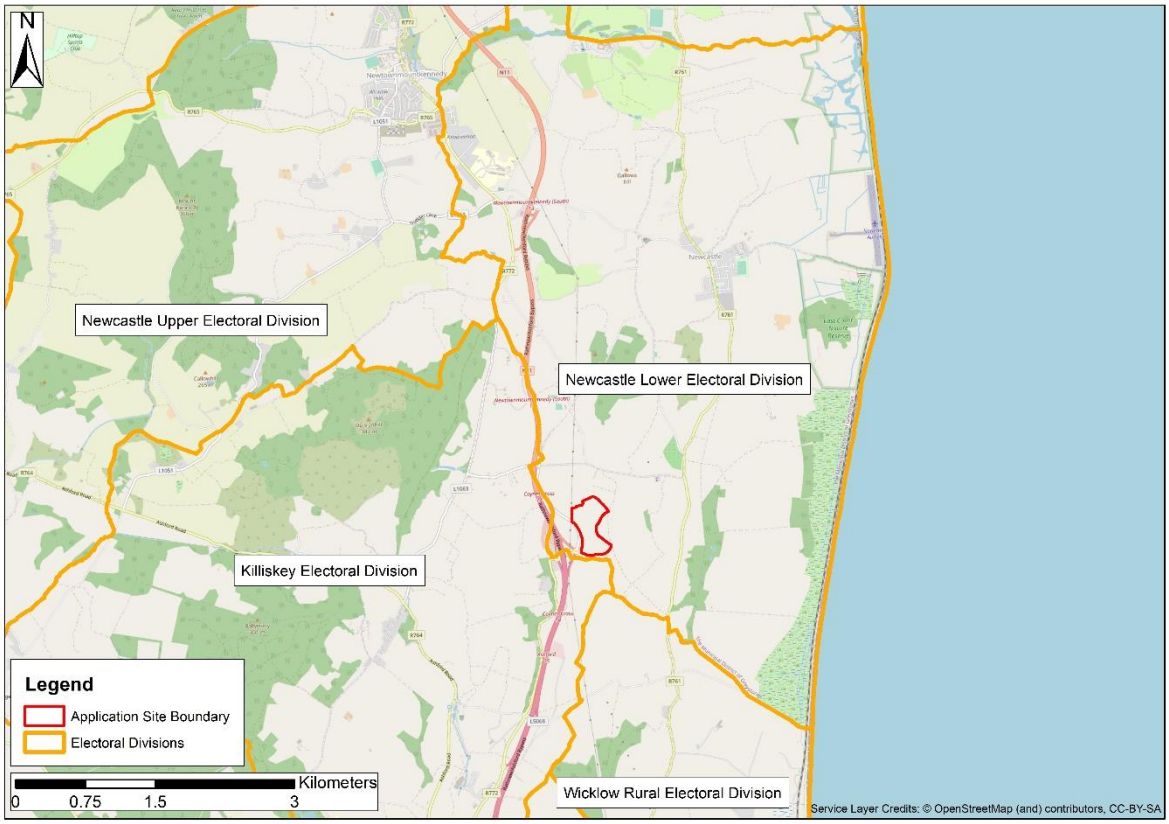

Figure 2-1 - Application Site shown in regional context

2.2 EIA APPROACH OVERVIEW

Environmental Impact Assessment (EIA) is a process undertaken for certain types of development. It provides a means of drawing together the findings from a systematic analysis of the likely significant environmental effects of a scheme to assist planning authorities, statutory consultees and other key stakeholders in their understanding of the impacts arising from the development.

The aim of EIA is to protect the environment by ensuring that when a responsible authority decides whether to grant permission for a proposed development, which is likely to have significant effects on the environment, it does so with full knowledge of the likely significant effects. It is then able to take these into account in the decision-making process.

The aim of EIA is also to ensure that the public are given early and effective opportunities to participate in the decision-making procedures. General objectives of the EIA process are to:

- Protect human health and safety;
- Ensure efficient use of resources;
- Avoid serious and irreversible damage to the environment;
- Modify and improve environmental design;
- Allow for public participation in the development process;
- Inform decision making and condition setting; and,
- Identify key impacts and measures for mitigation.

The EIA process follows three main stages to the point at which the EIA Report (EIAR) is submitted:

1. Screening – to determine whether a proposed development should be subject to EIA;
2. Scoping – to determine which topic areas (environmental factors) should be included in the EIA (scoped in) and which should be excluded (scoped out); and
3. EIAR Preparation – the stage in which the main body of work is undertaken, resulting in the production of an EIAR.

EIA involves a number of processes, which take place during screening, scoping and the main EIA stages:

1. Identifying and describing relevant features of the proposed development;
2. Identifying and describing relevant features of the baseline environment;
3. Consultation; and
4. Predicting likely impacts and effects of the proposed development on the baseline environment and developing any required mitigation measures.

Details of how the EIA process has been followed for the Proposed Development are set out below.

2.2.1 LEGISLATION AND APPROPRIATE GUIDANCE

2.2.1.1 European Directive and Transposition

The requirement for an Environmental Impact Assessment process arises from European Union (EU) Directives required to be adhered to by member States and transposed into national laws.

The European Union Directive 85/337/EC required that certain private and public projects which are likely to have significant resultant environmental impacts are subject to a formalised Environmental Impact Assessment prior to their consent.

This Directive was subsequently amended by the EU through three amendments: 97/11/EC, 2003/4/EC and 2009/31/EC, which were then codified in Directive 2011/92/EU. Subsequently, on 16 April 2014, Directive 2011/92/EU was amended by Directive 2014/52/EU of the European Parliament and of the Council.

The following is stated by the Department of Housing, Planning and Local Government in the Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, (August 2018):

'The objective of Directive 2011/92/EU, as amended by Directive 2014/52/EU, is to ensure a high level of protection of the environment and human health, through the establishment of minimum requirements for environmental impact assessment (EIA), prior to development consent being given, of public and private developments that are likely to have significant effects on the environment.'

The 2014/52/EU Directive was transposed into Irish law through European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (SI No. 296 of 2018) which amended the Planning and Development Act, 2000, and the Planning and Development Regulations, 2001. This EIAR has been produced in accordance with these relevant legislative requirements and Statutory Instruments.

The EIA Directive (Directive 2011/92/EU, as amended by Directive 2014/52/EU) consists of 16 no. Articles and 5 no. Annexes that define EIA and the supporting information and processes available and required for EIA determination in the form of reasoned conclusion by the competent authority. EIA is mandatory for certain types of projects and for other projects that meet or exceed thresholds as set out in Annexes I and II of the EIA Directive.

Article 5 of the EIA Directive sets down the minimum information to be supplied in an EIAR including data and information to be included by the developer in the EIAR identified in Annex IV of the EIA Directive.

2.2.1.2 Guidance

The EIAR for the proposed Soil Recovery Facility at Kilmartin, Coynes Cross has been undertaken with regard to the above referenced legislation and also with the following guidance:

- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (Environmental Protection Agency (EPA, 2022).
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Environment, Community and Local Government, 2018).

- Environmental Impact Assessment of Projects Guidance on the Preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU) (European Commission of the European Union 2017).
- The classification of effects and their significance has also been carried out based on the above materials (with some modifications to increase clarity) unless this is otherwise stated within the relevant section or chapter.

2.2.2 EIAR STRUCTURE AND CONTENT

The EIAR has been prepared in a 'Grouped Format' structure having regard to the prescribed environmental factors of the EIA Directive and the EPA Guidance; “Population and Human Health, Biodiversity, Land, Soil, Water, Air, Climate, Material Assets, Cultural Heritage, Landscape and Interactions” (EPA 2022).

In this way, each aspect of the environment is presented as a separate chapter referring to the environment as it existed before development, the Proposed Development, likely impacts, and proposed mitigation measures. The EIAR has therefore been systematically organised to provide the information and environmental aspect chapters identified in Table 2-1

Table 2-1 - Overall Structure of the EIAR

Content	Chapter
Context and Requirement for EIAR	1.0: Introduction and Background 2.0: Scope and Methodology
A description of the existing environment	3.0: Project Description (and each of the technical chapters)
A description of the project	3.0: Project Description
A description of the alternatives	4.0: Alternatives
Identification of experienced / likely significant impacts during construction and operation of the development and a description of the measures employed / envisaged in order to avoid, reduce and, if possible, remedy significant adverse impacts	5.0: Population and Human Health 6.0: Ecology and Biodiversity 7.0: Land, Geology and Soils 8.0: Water 9.0: Air Quality and Climate 10.0: Noise and Vibration 11.0: Cultural Heritage 12.0: Traffic and Transport 13.0: Landscape and Visual 14.0: Material Assets 15.0: Interactions, Cumulative and Combined Effects 16.0: Mitigation and Monitoring Measures
Sets down the cumulative and in combination significant effects of the project and considers expected / experienced effects deriving from the vulnerability of the project to risks of major accidents	15.0: Interactions, Cumulative and Combined Effects

and/or disasters that are relevant to the project concerned	

A Non-Technical Summary (NTS) accompanies the EIAR and provides a summary of the key findings of the EIA in non-technical language.

Table 2-2 identifies the data and information to be included by the developer in the EIAR as described in Annex IV of the EIA Directive, and the location of this information within the document.

Table 2-2 - Requirements of 2014/52/EU Annex IV and where these have been addressed in this EIAR

Item	Requirement of Annex IV item	Reference in EIAR
1	Description of the project, including in particular: A description of the location of the project. A description of the physical characteristics of the whole project, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases. A description of the main characteristics of the operational phase of the project (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used. An estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operation phases.	Annex IV 1(a) and 1(b) are addressed in Chapter 3.0 – 'Project Description' Annex IV 1(c) and 1(d) are addressed in Chapter 3.0 – 'Project Description', and identified in the relevant technical chapters
2	A description of the reasonable alternatives (for example in terms of project 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.	Chapter 4.0 – 'Alternatives'
3	A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.	A 'Baseline Conditions' section has been provided in each technical chapter' along with a 'Do-Nothing' scenario without development section.
4	A description of the factors specified in Article 3(1) likely to be significantly affected by the project: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including	Each relevant study area which has been scoped into the EIAR is provided within a dedicated technical chapter. Chapters 5.0 – 14.0

Item	Requirement of Annex IV item	Reference in EIAR
	architectural and archaeological aspects, and landscape.	
5	A description of the likely significant effects of the project on the environment resulting from, inter alia: The construction and existence of the project, including, where relevant, demolition works. The use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources. The emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste. The risks to human health, cultural heritage or the environment (for example due to accidents or disasters). 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. The impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change. The technologies and the substances used. The description of the likely significant effects on the factors specified in Article 3(1) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the project. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project	Annex IV 5 (a), (b) and (c) are addressed in each technical chapter, as appropriate. Annex IV 5 (d) is addressed in Chapter 3.0 (Project Description) and addressed in each technical chapter, as appropriate (e.g. Chapter 5.0: Population and Human Health, and Chapter 11.0: Cultural Heritage). Annex IV 5 (e) is addressed in Chapter 15.0 (Interactions, and Cumulative Impacts). Annex IV 5 (f) is addressed in Chapter 9.0 (Air Quality and Climate) Annex IV 5 (g) is addressed in Chapter 3.0 (Project Description) and addressed in each technical chapter, as appropriate. For Annex IV 5 (g), descriptions of effects are identified in each technical chapter, as appropriate. Assessment methodology is identified in each technical chapter, as appropriate, or a common framework and terminology has been identified in Chapter 2.0. Difficulties encountered in compiling the EIAR have been identified in Chapter 1.0. Difficulties encountered for specific topics are addressed in the relevant chapters, as required. Transboundary impacts have been considered in Chapter 1.0 and scoped out of this assessment.
6	A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.	Assessment methodology is identified in each technical chapter, as appropriate, or a common framework and terminology has been identified in Chapter 2.0. Difficulties encountered in compiling the EIAR have been identified in Chapter 1.0. Difficulties encountered for specific topics are addressed in the relevant chapters, as required.
7	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,	The identification of mitigation measures is identified in each technical chapter, as appropriate. These have also been compiled in Chapter 16.0: Mitigation and Monitoring Measures.

Item	Requirement of Annex IV item	Reference in EIAR
	and should cover both the construction and operational phases.	
8	A description of the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to Union legislation such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or relevant assessments carried out pursuant to national legislation may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.	The identification of the vulnerability of the project to major accidents and disasters has been considered in Chapter 3.0.
9	A Non-technical summary of the information provided under points 1 to 8.	A non-technical summary has been prepared for the EIAR.
10	A reference list detailing the sources used for the descriptions and assessments included in the report.	Final section of each technical chapter.

2.2.3 EIAR CONTRIBUTORS AND DEMONSTRATION OF COMPETENCY AND INDEPENDENCE

The EIAR was completed by a project team led by WSP, who also prepared a number of the chapters.

The members of the team and their respective inputs are described in Chapter 1.0 of this EIAR.

In accordance with the EIA Directive, WSP confirm that experts involved in the preparation of the EIAR are fully qualified and competent in their respective field. Each has extensive proven expertise in the relevant field concerned, thus ensuring that the information provided herein is complete and of high quality.

2.3 EIA STAGES

2.3.1 SCREENING

Screening is a procedure used to determine whether a Proposed Development is likely to have significant effects on the environment. The outcome is a decision on whether EIA needs to be undertaken for the Proposed Development, in which case the subsequent stages of scoping and EIAR preparation will be followed.

Part 1 and Part 2 of Schedule 5 of the Planning and Development Regulations 2001 (as amended) identify the nature and scale of development that requires mandatory Environmental Impact Assessment (EIA) and submission of an Environmental Impact Assessment Report (EIAR) in support of a planning application.

Class 11, Part 2 of Schedule 5 states that the following form of development requires an EIA

(b) Installations for the disposal of waste with an annual intake greater than 25,000 tonnes not included in Part 1 of this Schedule.

The planned combined annual intake of soil / stone / construction and demolition (C&D) waste intake to the planned waste facility will be up to 550,000 tonnes per annum (on the basis that site will operate 5.5 days per week and 50 weeks per year, and it is expected that on average there would be 100 deliveries per day). 550,000 tonnes per annum far exceeds the threshold limit of 25,000 tonnes per annum for Class 11 and there is therefore a requirement for EIA and an EIAR under Part 2 of Schedule 5.

Additionally, where the Commission has issued notice to a prospective Applicant that a proposed development is deemed to be strategic infrastructure development (SID), an application for permission in writing for that proposed development may only be made to the Commission and must be accompanied by an EIAR (ABP 2024).

2.3.2 SCOPING

The scoping stage involves deciding which environmental topics should be covered by the EIA and therefore what information should be included in the EIAR. This involves considering the nature of the Proposed Development and the initial, usually desk based, information that has been obtained on the baseline environment. The topic areas where significant effects may potentially arise (and those where significant effects are unlikely to arise) are then identified. Methodologies for filling any information gaps and for undertaking the assessment are then developed for each of the topic areas that have been 'scoped in'.

Following a pre-consultation meeting between WSP Ireland Consulting Ltd (WSP) and ACP[1] that took place 13th January 2022 the following topics were scoped into the EIA, as it was considered that there was potential for significant environmental effects to arise as a result of the Proposed Development:

- Population and Human Health;
- Ecology and Biodiversity;
- Land, Geology and Soils;
- Water;
- Air Quality and Climate;
- Noise;
- Cultural Heritage and Archaeology;
- Traffic and Transport;
- Landscape and Visual;
- Material Assets; and
- Interactions, and Cumulative and Combined Effects.

The following topics were scoped out of the EIA, as it was not considered that there was potential for significant environmental effects to arise as a result of the Proposed Development:

- Human Health Impact Assessment;
- Socio-Economics;

[1] Then known as An Bord Pleanála.

- Major Accidents and Disasters; and
- Vibration.

2.3.2.1 Human Health Impact Assessment

Potential impacts to human health were identified to be limited and predominantly confined to fugitive emissions during the short-term construction phase of the development. Therefore, a detailed human health impact assessment has been scoped out of this EIAR.

Any health impacts from the construction and operational phases of the Proposed Development have been considered in relation to biophysical factors such as air, noise and water. This has been addressed within the Population and Human Health and cross-referenced to the relevant assessment sections elsewhere in the EIAR, (namely Chapter 8.0: Water, Chapter 9.0: Air Quality and Climate, Chapter 10.0: Noise and Vibration, and Chapter 12.0: Traffic and Transportation).

The EIAR conducted assessments of potential health impacts from air, noise and water using appropriate guidance and methods. Effects which are determined 'Not Significant' on the human health of the surrounding receptors are as a result of potential water, air, noise and traffic impacts identified in the relevant assessments. The potential population and human health impacts of the Proposed Development have been fully and adequately addressed in this EIAR. Any further or more detailed assessment of human health impacts is not appropriate nor required with respect to the nature of the development.

2.3.2.2 Socio Economics

The legislation does not generally require assessment of land-use planning, demographic issues or detailed socio-economic analysis therefore such assessments have not been scoped into the EIAR. The EPA's 2022 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' identify that such assessment should be avoided in an EIAR, unless issues such as economic or settlement patterns give rise directly to specific new developments and associated effects. As the Proposed Development comprises a soil recovery facility the assessment of land-use planning, demographic issues and a detailed socio-economic analysis has been scoped out of this EIAR.

2.3.2.3 Major Accidents and Disasters

The EIA Directive, as amended, states the need to assess the vulnerability of the Proposed Development to major accidents and natural disasters were *"the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or natural disasters which are relevant to the project concerned."*[2]

The Proposed Development will be designed, built and operated in line with the methodologies and measures prescribed in this EIAR. On this basis, and in consideration of the nature, scale, and location of the Proposed Development (see Chapter 3.0: Project Description) it is unlikely to be vulnerable to major accidents and/or natural disasters that are likely to have significant adverse effects on the environment.

[2] EIA practice already includes an assessment of some potential accidents and disaster scenarios such as pollution incidents to ground and watercourses. Such scenarios are considered in the relevant EIAR chapters.

2.3.2.4 Vibration

The Proposed Development is not expected to generate significant levels of vibration in the immediate vicinity of the Proposed Development itself. Levels of vibration at off-site receptors will be lower still and are expected to be substantially below the threshold of perception. Further consideration of vibration has therefore been scoped out of this assessment. For further detail see Chapter 10.0: Noise and Vibration.

2.3.3 EIAR PREPARATION

The main EIA stages involves activities such as undertaking surveys to fill gaps in baseline data, undertaking environmental modelling, assessing the nature and significance of effects and preparing the EIAR, including the Non-Technical Summary (NTS).

Minor difficulties encountered in compiling the required information for the EIAR and the main uncertainties involved have been identified in Chapter 1.0: Introduction. Any additional topic-specific difficulties are described in the individual topic chapters.

2.4 EIA PROCESSES

2.4.1 DETERMINING THE KEY FEATURES OF THE PROPOSED DEVELOPMENT

A description of the Proposed Development is provided in Chapter 3.0: Project Description including information on the site, design, size and other relevant features of the development.

A description of the reasonable alternatives, which are relevant to the Proposed Development and its specific characteristics, is provided in Chapter 4.0: Alternatives. An indication is provided of the main reasons for the option chosen, taking into account the effects of the development on the environment.

2.4.2 DETERMINING THE BASELINE

A description is provided within the various topic chapters of the relevant aspects of the current state of the environment (baseline scenario). An outline is also provided of the likely evolution of the baseline environment in the absence of implementation of the Proposed Development (the 'Do-Nothing' scenario). Information on the baseline environment was obtained through desk top review of existing environmental data and, where necessary, the collection of new data through site surveys.

Establishment of the current and future baseline allowed effects to be assessed and reported by comparing a scenario with the development against one without the development.

The baseline description provided in the EIAR:

- Includes a description of the site location and the surrounding area as far as environmental effects are anticipated; and
- Defines existing land-uses and environmental receptors/resources relevant to the environmental topic.

2.4.3 PREDICTION OF IMPACTS AND EFFECTS AND DEVELOPMENT OF MITIGATION MEASURES

2.4.3.1 Determining the Extent of the Assessment

It is necessary to define the extent of the EIA in both spatial and temporal terms, and this has been done as described below.

Geographical Extent

The EIAR directly covers the physical extent of the Site as shown in the red line boundary plan (also known as the 'application boundary', see Figure 2-1). Also, many predicted impacts can extend beyond the immediate Application boundary, for example the use of the Site for foraging by a species that is primarily located off-site. Therefore, for certain topic areas a wider 'zone of influence' has been considered, as described in the individual topic chapters where considered relevant.

The geographical extent of the EIA also includes the cumulative impacts from related and unrelated development activities in both works and restoration phases.

Temporal Extent

Under the current programme, it is expected that the duration of operation of the soil recovery facility may last for between 4–10 years depending on availability of soil to complete the Proposed Development. A restoration and aftercare phase for the Proposed Development has been considered along with the phasing of activities which is described in Chapter 3.0: Project description. The EIAR has been based on these assumptions.

For the purpose of clarity, this EIAR uses the term **works phase** to describe the period of time comprising the following:

- Enabling works carried out to provide facilities for the operation of the facility (including entrance upgrades, welfare facilities, hard standing areas, and weighbridge); and,
- The operation of the facility.

A **restoration phase**, broadly following the work phase (with some temporal overlap), is also considered where relevant.

2.4.4 PREDICTION OF IMPACTS AND EFFECTS PRIOR TO MITIGATION

Forecasting methods are required to identify and assess the significant effects of the Proposed Development on the environment. The forecasting methods used for each technical discipline are detailed in the respective chapter. For several topic areas, forecasting methods have been developed by professional bodies. Where these are available, they are cited in the relevant technical chapters of this EIAR.

For topics where there is no topic specific guidance available, a common framework of assessment criteria and terminology has been used based on the EPA's 2022 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports'.

This common framework follows a 'matrix approach' to environmental assessment which is based on the characteristics of the impact (magnitude and nature) and the value (sensitivity) of the receptor. The terms used in the common framework are described below. Details of how these specifically relate to the individual topic areas are provided within the respective topic chapters.

The descriptions for value (sensitivity) of receptors are provided in Table 2-3.

Table 2-3 - Environmental Value (Sensitivity) and Descriptions

Value (sensitivity) of Receptor / Resource	Typical Description
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.

The descriptions for magnitude of impact are provided in Table 2-4.

Table 2-4 - Magnitude of Impact and Typical Descriptions

Magnitude of impact (change)		Typical Description
High	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.
Medium	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.
Low	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 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.

The approach followed to derive effects significance from receptor value and magnitude of impacts is shown in Table 2-5. Where Table 2-5 includes two significance categories, the reporting of a single significance category is supported by rationale provided in supporting text. The criteria and terminology in Table 2-5 has been based on and is consistent with the EPA's 2022 EIAR Guidelines. The EPA's 'Significant Effects' and 'Very Significant' categories have been combined into one 'Large' category. Furthermore, the EPA's 'Not Significant' category has been combined with the 'Slight Effects' category. These substitutions provide conservatism by attributing a higher effects category to adverse effects. The removal of the 'significant' and 'not significant' terminology from the matrix stage of the method avoids confusion when an overall significance is attributed to the particular impact.

Table 2-5 - Significance Matrix

Environmental Value (Sensitivity)	Magnitude of Impact (Degree of Change)				
		Negligible	**Low**	**Medium**	**High**
	High	Slight	Slight or moderate	Moderate or large	Profound
	Medium	Imperceptible or slight	Slight or moderate	Moderate	Large or profound
	Low	Imperceptible	Slight	Slight	Slight or moderate
	Negligible	Imperceptible	Imperceptible or slight	Imperceptible or slight	Slight

A description of the significance categories used in Table 2-6.

Table 2-6 - Significance Categories and Typical Descriptions

Significance Category	Typical Description
Profound	An effect which obliterates sensitive characteristics. Only adverse effects are usually assigned this level of significance. These factors are key issues in the decision-making and consent process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance which are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also be included in this significance category.
Large	An effect which, by its character, magnitude, duration or intensity alters a significant proportion of a sensitive aspect of the environment. These can be beneficial or adverse effects and are considered to be very important issues which are likely to be substantial in the decision-making process.
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends. These are beneficial or adverse effects which may be important but are not likely to be central to decision-making or consent. The cumulative effects of these factors may influence consent or decision-making if they should lead to an increase in the overall adverse effect on a particular resource or receptor.
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities. These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical in the decision-making process but are important in enhancing the subsequent design of the project.
Imperceptible	An effect capable of measurement but without significant consequences. No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

Effects that are either Large or Profound alter environmental sensitivities and are therefore considered to be **Significant** based on professional judgement. Effects that are Moderate, Slight or Imperceptible are those which at their highest effect are consistent with existing and emerging baseline trends and are considered to be **Not Significant**. The assessment of the significance of environmental effects covered the following factors:

- The receptors/resources (natural and human) which would be affected and the pathways for such effects;
- The geographic importance, sensitivity or value of receptors/resources;
- The duration (long or short term); permanence (permanent or temporary) and changes in significance (increase or decrease);
- Reversibility - e.g. is the change reversible or irreversible, permanent or temporary;
- Environmental and health standards (e.g. local air quality standards) being threatened; and,
- Feasibility and mechanisms for delivering mitigating measures, e.g. Is there evidence of the ability to legally deliver the environmental assumptions which are the basis for the assessment.

2.4.5 DESIGN AND MITIGATION

The environmental assessment and design of the Proposed Development incorporated mitigation measures using a hierarchical system as follows:

1. Avoidance and prevention: design and mitigation measures to prevent the effects (e.g. alternative design options or avoidance of environmentally sensitive sites);
2. Reduction: where avoidance is not possible, then mitigation is used to lessen the magnitude or significance of effects; and
3. Remediation: where it is not possible to avoid or reduce a significant adverse effect, these are measures to offset the effect.

The following categories of mitigation have been described in the EIAR:

1. Embedded mitigation: project design principles adopted to avoid or prevent adverse general environmental effects (as described in the Chapter 3.0: Project Description), and including fixed procedural commitments such as the development and adoption of an Environmental Management System for the works phase, and other associated management plan documents; and
2. Essential mitigation: measures required to reduce and if possible offset likely significant adverse environmental effects, in support of the reported significance of effects in the environmental assessment (as described in the individual topic chapters).

Any enhancement measures have also been described (measures that are over and above what is required to mitigate the adverse effects of a project), as well as any requirements for monitoring of mitigation measures associated with any significant environmental effects.

2.4.6 PREDICTION OF RESIDUAL IMPACTS AND EFFECTS

Once the embedded mitigation and essential mitigation measures were developed the assessment process for predicting impacts and effects described above was repeated to determine the residual effects (i.e. the effects remaining after mitigation).

2.4.7 CUMULATIVE EFFECTS

The EIA assessed cumulative effects including those from:

1. The Development itself (e.g. numerous different effects impacting a single receptor); and
2. Different projects (together with the Development itself).

The assessment of cumulative effects from other projects included:

1. Establishment of the zone of influence of the Development together with other projects;
2. Establishment of a list of projects which had the potential to result in cumulative impacts, including:
    a. Development projects with valid planning permissions or consent orders, and for which EIA is a requirement; and
    b. Proposals in adopted development plans with a clear identified programme for delivery.
1. Obtaining further information and detail on the list of identified projects to support further assessment.

Assessment of Interactions, Cumulative and Combined Effects are addressed in Chapter 15.0: Interactions, Cumulative and Combined Effects.

2.5 OTHER RELEVANT DOCUMENTS

In addition to the EIAR, the following key documents are available as separate reports prepared as part of the wider SID application documentation:

- Stage 1 Appropriate Assessment Screening Report,
- Pre-Consultation Report,
- Invasive Species Management Plan[3],
- Stage 1 Road Safety Audit.

[3] No legally designated invasive floral species have been reported from ecology walkovers on the Site. However, a high-level Invasive Species Management Plan has been prepared to facilitate the management of biosecurity during the works phase and restoration phase as the Proposed Development will require import of soil onto the Site with may contain seedbank from offsite sources.

2.6 REFERENCES

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