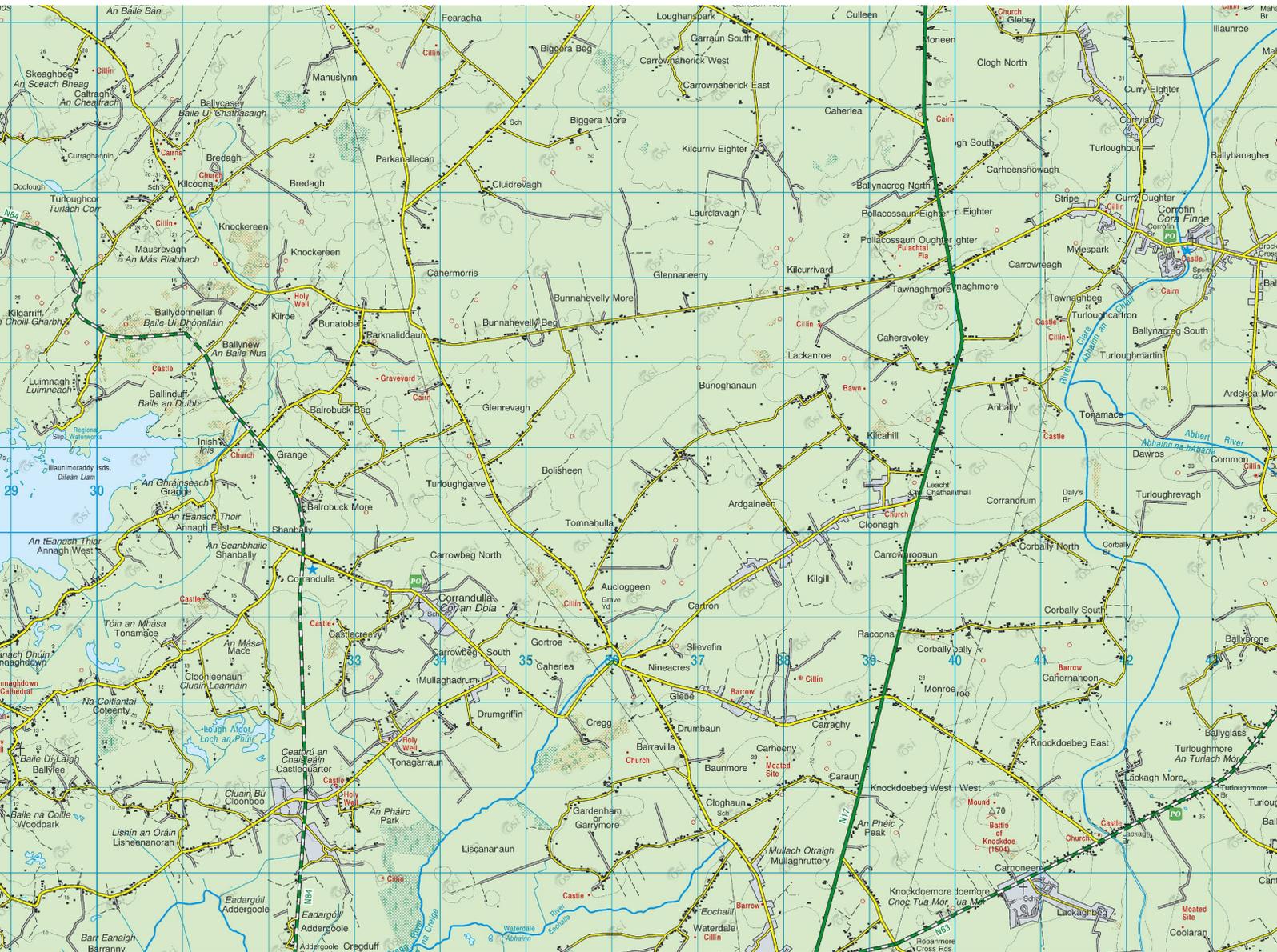


CHAPTER 2

SCOPE AND METHODOLOGY

RECEIVED: 24/08/2025



RECEIVED: 27/08/2025

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CHAPTER 2: SCOPE & METHODOLOGY

Introduction

- 2.1 This chapter presents an outline of the EIA reporting methodology to be employed for the proposed development. It outlines the methodology for the identification and evaluation of potential likely significant environmental effects and also presents the methodology for the identification and evaluation of potential cumulative and inter-related impacts.

Legislation and Appropriate Guidance

- 2.2 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 and subsequently amended by Directive 2014/52/EU.
- 2.3 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.
- 2.4 The Environmental Impact Assessment of the Proposed Development has been made with regard to the 'Guidelines on the information to be contained in Environmental Impact Assessment Reports', published by the EPA (Environmental Protection Agency, 2022); and the 'Draft Advice Notes for Preparing Environmental Impact Statements', (Environmental Protection Agency, 2003).
- 2.5 The latter document contains specific guidance on the types of issues to be considered in relation to Quarries (Project Type 18). The classification of effects and their significance has also been carried out in accordance with these guidance; unless this is otherwise stated within the relevant section or chapter.
- 2.6 The Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning and Local Government, 2018), were also considered in this assessment. Assessments of technical disciplines have been made in accordance with applicable legislation, identified guidance and industry best practice. Relevant European Commission guidance considered as part of this assessment includes: Environmental Impact assessment of Projects – Guidance on Screening (European Commission, 2017b); Environmental Impact assessment of Projects – Guidance on Scoping (European Commission, 2017a); and Environmental Impact Assessment of Projects – Guidance on the Preparation of the Environmental Impact Assessment Report (European Commission, 2017c).

Annex IV of Directive 2014/52/EU

- 2.7 Information for the EIAR Data and information to be included by the developer in the EIAR is identified in Annex IV of the amended EIA Directive, 2014/52/EU. Table 2.4: Requirements of 2014/52/EU Annex IV and where these have been addressed in this EIAR.

Table 2.1: 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	<p>Description of the project, including in particular:</p> <p>(a) a description of the location of the project;</p> <p>(b) 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;</p> <p>(c) 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;</p> <p>(d) 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.</p>	<p>(a) Chapter 1.0 – Introduction & (a) & (b) Chapter 3.0 – Project Description</p> <p>(c) and (d) Chapter 3.0 Project Description, and identified in the relevant technical chapters</p>
2	<p>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.</p>	<p>Chapter 4.0 – Alternatives</p>
3	<p>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</p>	<p>A ‘Baseline Conditions’ section has been provided in each technical chapter along with a section which summarises a ‘Do-Nothing’ scenario without development.</p>
4	<p>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 architectural and archaeological aspects, and landscape</p>	<p>Each relevant study area which has been scoped into the EIAR is provided within a dedicated technical chapter. Chapters 5.0 –15.0.</p>

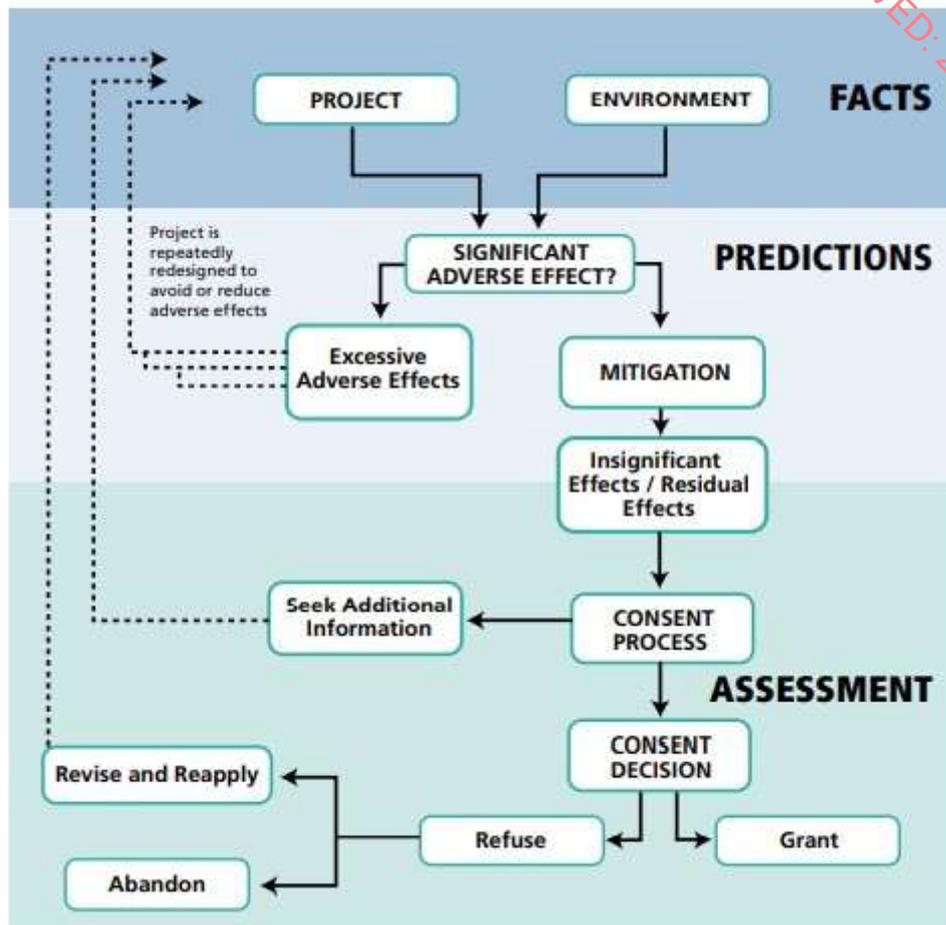
<p>5</p>	<p>A description of the likely significant effects of the project on the environment resulting from, inter alia:</p> <p>(a) the construction and existence of the project, including, where relevant, demolition works;</p> <p>(b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;</p> <p>(c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;</p> <p>(d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);</p> <p>(e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;</p> <p>(f) 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; (g) 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.</p>	<p>(a), (b) and (c) Each technical chapter, as appropriate</p> <p>(d) Chapter 5.0 (Pop and Human Health)</p> <p>(e) Chapter 16.0 (Interactions).</p> <p>(f) Chapter 10.0 (Air Quality) and Chapter 9.0 (Climate)</p> <p>(g) Each technical chapter, as appropriate</p> <p>Descriptions of effects are identified in each technical chapter, as appropriate.</p>
<p>6</p>	<p>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.</p>	<p>Assessment methodology is identified in each technical chapter.</p> <p>Difficulties encountered in compiling the EIAR has been identified where appropriate within the technical chapters.</p>
<p>7</p>	<p>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</p>	<p>The identification of mitigation measures is identified in each technical chapter, as appropriate.</p>

	on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.	Chapter 17 provides a summary of all mitigation measures and monitoring proposed.
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 risks of major accidents and/or disasters is identified in each technical chapter, as appropriate.

EIA Approach Overview: EPA Guidelines (2022)

- 2.8 The fundamental principles to be followed when preparing an EIAR are:
- Anticipating, predicting, avoiding and reducing significant effects;
 - Assessing and mitigating effects;
 - Maintaining objectivity;
 - Ensuring clarity and quality;
 - Providing relevant information to decision makers;
 - Facilitating better consultation.
- 2.9 Figure 2.1 below illustrates that the EIA process can be considered as involving three main parts. The first consists of a compilation of facts – i.e. the description of the existing environment and the description of the proposed project.
- 2.10 The second consists of predictions of likely effects – this may be carried out on an iterative basis as the design is improved to eliminate excessive adverse effects.
- 2.11 The final part consists of the assessment of the environmental effects as part of a consent process which may decide to grant, condition, refuse or seek additional information.

Figure 2.1: The EIA Process (taken from the EPA Guidelines (2022))



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

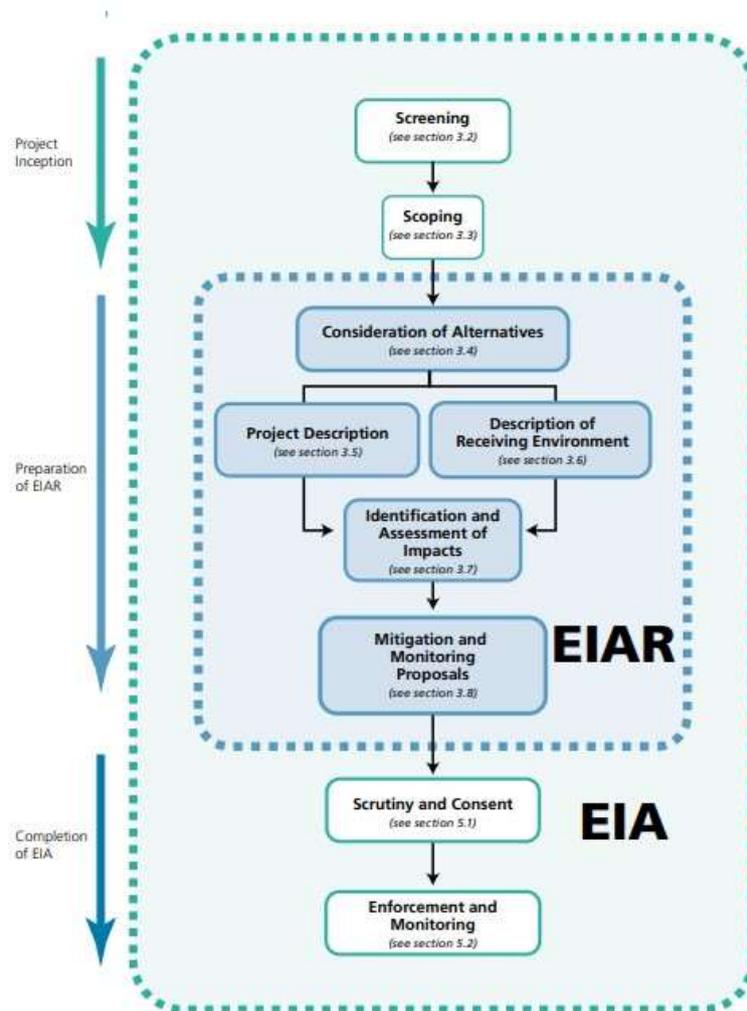
- 1) Screening – to determine whether a proposed development should be subject to EIA;
- 2) Scoping – to determine which topic areas (environmental factors) should be included in the EIA (scoped in) and which should be excluded (scoped out); and
- 3) EIAR Preparation – the stage in which the main body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

2.13 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.

2.14 More details of these stages and processes are provided in Figure 2.2, and the sections below.

Figure 2.2: The Position of an EIAR within the EIA Process (taken from the EPA Guidelines (2022))



EIA Process

Screening

- 2.15 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.
- 2.16 In order to determine whether an EIA is required for the proposed development, it is necessary to determine whether it is a project listed in one of the Annexes to the Directive 2011/92/EU (as amended by Directive 2014/52/EU). These Annexes have been transposed in to Irish law.
- 2.17 The prescribed classes of development which require EIA are outlined in Schedule 5 of the Planning and Development Regulations 2001 (S.I. 600 of 2001, as amended).
- 2.18 Paragraph 19 of Part 1 of Schedule 5 states that the following form of development requires an EIA:

“Quarries and open-cast mining where the surface of the site exceeds 25 hectares.

- 2.19 Paragraph 22 relates to changes or extensions. It states:
“Any change or extension of projects listed in this Annex where such a change or extension in itself meets the thresholds, if any set out in this Annex.”
- 2.20 Paragraph 2 of Part 2 of Schedule 5 refers to extractive industry and part (b) of that section states that the following requires an EIA
“Extraction of stone, gravel, sand or clay, where the area of extraction would be greater than 5 hectares.”
- 2.21 In addition, paragraph 13(a) of Part 1 requires EIA in respect of:
“Any change or extension of development already authorised, executed or in the process of being executed (not being a change or extension refer to in Part 1) which would:-
- i. *result in the development being of a class listed in Part 1 or paragraphs 1 to 12 of Part 2 of this Schedule and*
 - ii. *result in an increase in size greater than –*
25 per cent, or
an amount equal to 50 per cent of the appropriate threshold,
whichever is the greater.
- 2.22 The proposed development relates to the lateral extension of the existing permitted quarry area over c.6.1 ha. area within an overall application area of c.12 ha.
- 2.23 The extraction area of the quarry is greater than 5 hectares. On this basis the extraction area of the quarry exceeds the area stated under Part 2 and an EIAR is required.

Scoping

- 2.24 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’.
- 2.25 When deciding on the scope of an EIAR, there is no statutory requirement to seek a Scoping Opinion from the local planning authority. The Planning and Development Act, (2000) 173, 2(a) states:
“If an applicant or a person intending to apply for permission so requests, the planning authority concerned shall give a written opinion on the information to be contained in an environmental impact statement, subject to any prescribed consultations to be carried out by the planning authority in relation to such an opinion, before that person submits the application for the grant of planning permission.”
- 2.26 The following topics have been 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;

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- Biodiversity;
- Land, Soils and Geology;
- Water;
- Climate;
- Air Quality;
- Noise and Vibration;
- Landscape and Visual;
- Traffic;
- Archaeology and Cultural Heritage;
- Material Assets;
- Interactions;
- Mitigation and Monitoring.

Consultation

- 2.27 Consultation is an important part of the EIA process, at both the pre and post application stage. Consultation may take place with the responsible authority, statutory consultees, other relevant bodies, and with the general public. It allows information to be obtained on the local environment and other issues, and for feedback to be provided on the Proposed Development and scope of the EIA.
- 2.28 A preplanning consultation request was issued to a number of consultees, including Galway County Council. The list of consultees and a record of consultation is provided in Table 2-2. Ongoing or post-application consultation will be referred to in EIAR chapters, where relevant.

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Table 2-2: Consultation Responses

Consultee	Response	Comments	Relevant ER Chapters
Department of Housing, Local Government and Heritage	Yes	<p>The information provided for the proposed limestone quarry extension at Ardgaheen is insufficient for a full assessment. It is necessary to retain a Consultant Archaeologist to conduct an Archaeological Impact Assessment (AIA) as part of the Cultural Heritage Impact Assessment (CHIA). This should include a desk-study and field inspections, targeted non-intrusive geophysical surveys (e.g., Ground Penetrating Radar), and targeted archaeological test excavations. All intrusive investigations (e.g., ground investigations for soils/geology/hydrogeology) should be monitored under Section 26 of the National Monuments Act by a qualified archaeologist. The results of these investigations should be included in the Environmental Impact Assessment Report (EIAR). Previous archaeological surveys and test excavations within the existing quarry should be incorporated into the EIA, documenting all previous discoveries and ensuring appropriate mitigation measures for archaeological heritage. Compliance with conditions of the existing quarry’s planning permission must be demonstrated. The Department awaits the submission of this assessment before further comments.</p> <p>The quarry site is not within any designated ecological protection area. The nearest Natura 2000 sites are Lough Corrib SAC (Site Code: 000297), approximately 2.3km east and 7km west of the site, and Lough Corrib SPA (Site Code: 004042), approximately 7km west of the site. An Environmental Impact Assessment Report (EIAR) is being prepared, assessing impacts on nearby Natura 2000 sites, with a Natura Impact Statement prepared if necessary. Existing EU and Irish guidance on EIA and Appropriate Assessment (AA) should be followed, considering updates from case law, especially concerning Article 6 of the Habitats Directive. The assessment should include detailed descriptions of all project stages (operation, extension, decommissioning, restoration) with comprehensive maps and drawings. Mitigation measures should be clearly detailed, ensuring they are effective and feasible within the site’s specific characteristics. The restoration plan should be based on thorough</p>	Chapter 6 Biodiversity, Chapter 7 Land Soils & Geology, Chapter 8 Hydrology, Chapter 14 Heritage

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Consultee	Response	Comments	Relevant ER Chapters
		<p>ecological surveys and assessments, considering the current ecological and environmental baseline, risks from invasive species, previous restoration plans and monitoring reports, and the potential presence of Peregrine Falcons and other raptors. Specific restoration aims and objectives should be set, with a monitoring programme to ensure timely corrective actions. Potential cumulative effects with other plans and projects should be considered, including the existing quarry and its restoration obligations, land reclamation, other developments and changes in local land use, and the Galway County Development Plan.</p> <p>Potential adverse effects on European sites from quarrying activities, especially concerning groundwater and surface water, must be assessed. A hydrological/hydrogeological assessment should be conducted, informed by data on geology, soils, and water monitoring.</p>	

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Consultee	Response	Comments	Relevant ER Chapters
<p>Geological Survey Ireland</p>	<p>Yes</p>	<p>Geological Survey Ireland (GSI) provides independent geological information and encourages its use for the environmental assessment and planning process related to the proposed extension of an existing limestone quarry at Ardgaheen, Claregalway, Co. Galway. This information serves as a baseline for site-specific assessments and should be correctly attributed to GSI.</p> <p>The national inventory of geoheritage sites, known as County Geological Sites (CGSs), is managed by the Geoheritage Programme of GSI. There are no CGSs in the vicinity of the proposed quarry extension. GSI requests the operator to assist with geological heritage goals by allowing access to quarry faces for scientific study during quarrying operations and by leaving a representative section of the quarry face or installing information panels post-quarrying to promote public awareness and education about the geology.</p> <p>The GSI's Groundwater and Geothermal Unit provides data and maps relevant to groundwater distribution, quality, and use. Proposed developments must consider impacts on groundwater abstractions and resources. The Groundwater Data Viewer indicates the area is underlain by a 'Regionally Important Aquifer - Karstified (conduit)'. The Groundwater Vulnerability map shows variable groundwater vulnerabilities in the area. Data from the GWClimate project may be useful for Flood Risk Assessment and management plans.</p> <p>GSI maintains online datasets of bedrock and subsoil geological mapping. Recently launched QGIS-compatible bedrock and Quaternary geology map data are available for use.</p> <p>GSI provides information on landslides, flooding, and coastal erosion via the National Landslide Database and Landslide Susceptibility Map. Data from the Groundwater Flooding project may also be relevant for Flood Risk Assessment.</p> <p>Baseline geochemistry data from the Tellus programme can be used to assess chemical</p>	<p>Chapter 7 Land Soils & Geology, Chapter 8 Water, Chapter 14 Heritage</p>

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Consultee	Response	Comments	Relevant ER Chapters
		<p>status at a regional scale and support environmental impact assessments.</p> <p>The Tellus programme also provides high-resolution geophysical data, covering approximately 75% of the country, useful for assessing environmental impacts and risks.</p> <p>GSI recommends several guidelines to assist with the environmental assessment process, including:</p> <ul style="list-style-type: none">• Institute of Geologists of Ireland, 2013. Guidelines for the Preparation of the Soils, Geology and Hydrogeology Chapters of Geology in Environmental Impact Statements.• EPA, 2022. Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR).• Department of Environment, Heritage and Local Government, 2004. Quarries and Ancillary Activities, Guidelines for Planning Authorities.• Environmental Protection Agency, 2006. Environmental Management in the Extractive Industry: Non-Scheduled Minerals.• Geological Survey of Ireland - Irish Concrete Federation, 2008. Geological Heritage Guidelines for the Extractive Industry. <p>If development proceeds, GSI requests a copy of any site investigation reports. Significant bedrock cuttings should remain visible as rock exposure for ongoing geological study, where safe and feasible. GSI may arrange visits to document exposures and asks for a digital photographic record of significant new excavations.</p> <p>GSI also included a list of relevant publicly available datasets that may be useful for the environmental assessment and planning process.</p>	

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Consultee	Response	Comments	Relevant ER Chapters
<p>Irish Water</p>	<p>Yes</p>	<p>Irish Water acknowledges receipt of the preplanning consultation for the proposed extension of the existing limestone quarry at Ardgaheen, Claregalway, Co. Galway. They emphasize the importance of assessing the impact of the quarry extension on local water supplies, ensuring that quarry operations do not interfere with existing water supply sources or infrastructure. Detailed hydrological studies should be conducted to evaluate potential effects on groundwater recharge areas and to ensure a sustainable water supply for the local community.</p> <p>Irish Water stresses the need for the proposed development to consider implications for wastewater management. Measures must be in place to prevent any potential contamination of surface water or groundwater from quarry operations. The Environmental Impact Assessment Report (EIAR) should include an assessment of the quarry’s impact on local wastewater treatment facilities and infrastructure.</p> <p>Environmental protection regulations must be strictly followed in all activities related to the quarry extension. Best practices for water conservation and pollution prevention should be implemented throughout the project lifecycle. Mitigation measures should be included in the EIAR to address any identified risks to water quality, including runoff management and spill prevention protocols.</p> <p>Ongoing monitoring of water quality and quantity should be conducted throughout the quarry’s operation to ensure compliance with environmental standards. Irish Water requests regular updates and reports on the monitoring results to ensure transparency and accountability. Any incidents of water contamination or supply disruption should be promptly reported to Irish Water.</p> <p>Irish Water advises close coordination with local authorities to align the quarry extension project with regional water management plans. Joint efforts should be made to ensure that quarry operations do not negatively impact the broader water resource management objectives of the area.</p>	<p>Chapter 8 Hydrology</p>

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Consultee	Response	Comments	Relevant ER Chapters
An Taisce	Yes	In the case of any quarry application such as this we would advise that as a preliminary matter all planning compliance with existing site be confirmed.	

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Consultee	Response	Comments	Relevant ER Chapters
<p>Transport Infrastructure Ireland</p>	<p>Yes</p>	<p>Thank you for your correspondence of 31 July 2023 regarding the above. The position in relation to your enquiry is as follows.</p> <p>Transport Infrastructure Ireland (TII) is not a planning authority. TII’s core function in relation to national roads is to deliver a modern, efficient and safe network. TII has, however, the status of a statutory consultee under planning legislation.</p> <p>TII is not in a position to engage directly with planning applicants in respect to proposed developments. TII will endeavour to consider and respond to planning applications referred to it given its status and duties as a statutory consultee under the Planning Acts.</p> <p>As a statutory consultee, submissions or comments to planning authorities on planning applications, if any, on proposed development represent TII’s primary input to the planning process. The approach adopted in making such submissions or comments seeks to uphold official policy outlined in the DoECLG Spatial Planning and National Roads Guidelines for Planning Authorities (2012), gov.ie - Spatial Planning and National Roads Guidelines Jan 2012 (www.gov.ie). It is expected that Galway County Council, as planning and roads authority for the area concerning your proposed development and An Bord Pleanála, will similarly abide by the provisions of official policy.</p>	

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Consultee	Response	Comments	Relevant ER Chapters
Galway County Council		<ul style="list-style-type: none">• A pre-planning meeting was held with the local authority on 9th July 2024.• The local authority noted that the principal of the development is compliant with the County Development Plan (CDP) policy.• The applicant confirmed that the reasons for the refusal of previous planning applications, including environmental impact and road safety concerns, have been addressed through comprehensive studies and the Section 38 road improvement works.• The local authority noted that the local road used to access the site currently has a speed limit of 80 kmph, which will be reduced to 60 kmph.• The local authority requested a separate section in the Environmental Impact Assessment Report (EIAR) to address the Water Framework Directive (WFD).• The local authority noted that the Lough Corrib Special Area of Conservation (SAC) hosts a population of lesser horseshoe bats, and a bat survey of the application site is required.• The local authority requested an in-combination assessment to assess cumulative impacts.• The local authority requested a summary of all mitigation measures to be provided with the EIAR.	Refer to Planning Statement; Chapter 8 (Water); Chapter 13 (Traffic); Chapter 16 (Interactions); Chapter 17 (Mitigation).

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Consultee	Response	Comments	Relevant ER Chapters
Galway County Council (Rob Lundo)	23 rd August 2024	<p>Continuation of use: No changes to the quarry output are proposed.</p> <p>Junction lines and drainage: Attention to be given to junction lines and drainage at the access point.</p> <p>Stop sign: A stop sign is required at the site access.</p>	Chapter 13 (Traffic)

EIAR Preparation

Difficulties Encountered in Preparing the EIAR

- 2.29 No particular technical difficulties were encountered in the preparation of the EIAR such that that the prediction of impacts from the Proposed Development has not been possible. Relevant difficulties or survey limitations specific to each study area have been identified in the respective technical chapters, as appropriate.
- 2.30 Conservative assessments and construction good practice methods/mitigations have been applied where information concerning methodology or program could not be fully determined. Other details of the development may be revised prior to the final planning permission grant of the development, in agreement with the planning authority.
- 2.31 As appropriate, information from publicly available sources has been used in the course of this assessment. This includes mapping sources such as the Environmental Protection Agency (EPA), Geological Survey of Ireland (GSI), Department of Environment, Climate and Communications and other information including Census returns. Due care has been taken in the review of these data sets; however no responsibility can be taken for inaccuracies which may be present within this public data.

Structure of the EIAR

- 2.32 The findings of the EIA are set out in this EIAR, comprising the following set of documents:
- Non-Technical Summary (NTS): This document will provide a summary of the key findings of the EIA in non-technical language.
 - Environmental Impact Assessment Report (EIAR): This document contains the full text of the EIA. The chapter headings will be as follows:
 - 1.0: Introduction;
 - 2.0: Scope and Methodology;
 - 3.0: Project Description;
 - 4.0: Alternatives;
 - 5.0: Population and Human Health;
 - 6.0: Biodiversity;
 - 7.0: Land, Soils and Geology;
 - 8.0: Water;
 - 9.0: Climate;
 - 10.0: Air Quality;
 - 11.0: Noise & Vibration;
 - 12.0: Landscape and Visual;
 - 13.0 Traffic;
 - 14.0: Archaeology and Cultural Heritage;
 - 15.0 Material Assets;
 - 16.0: Interactions; and

- 17.0 Mitigation and Monitoring.

Structure of the EIAR Chapters

2.33 Each technical chapter will follow a similar structure, covering the following:

- Introduction;
- Legislative and Policy Context;
- Assessment Methodology and Significance Criteria;
- Baseline Conditions;
- Potential Effects;
- Mitigation and Management (and/or Monitoring);
- 'Do-Nothing' Scenario;
- Cumulative Effects;
- Residual Effects;
- Difficulties Encountered; and
- References.

Determining the Key Features of the Proposed Development

2.34 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.

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

Determining the Baseline

2.36 The EIA Directive requires the following in terms of baseline description under Annex IX:

"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."

2.37 The EPA's Guidelines on the Information to be Contained in EIARs (EPA, 2022) provides guidance on the methodology used to establish the baseline scenario within an EIAR.

2.38 Establishment of the baseline is a key foundation when carrying out the EIA process as it identifies existing environmental factors which must be considered relating to the Proposed Development and likely impacts from the Proposed Development, and significance of those impacts, on the baseline.

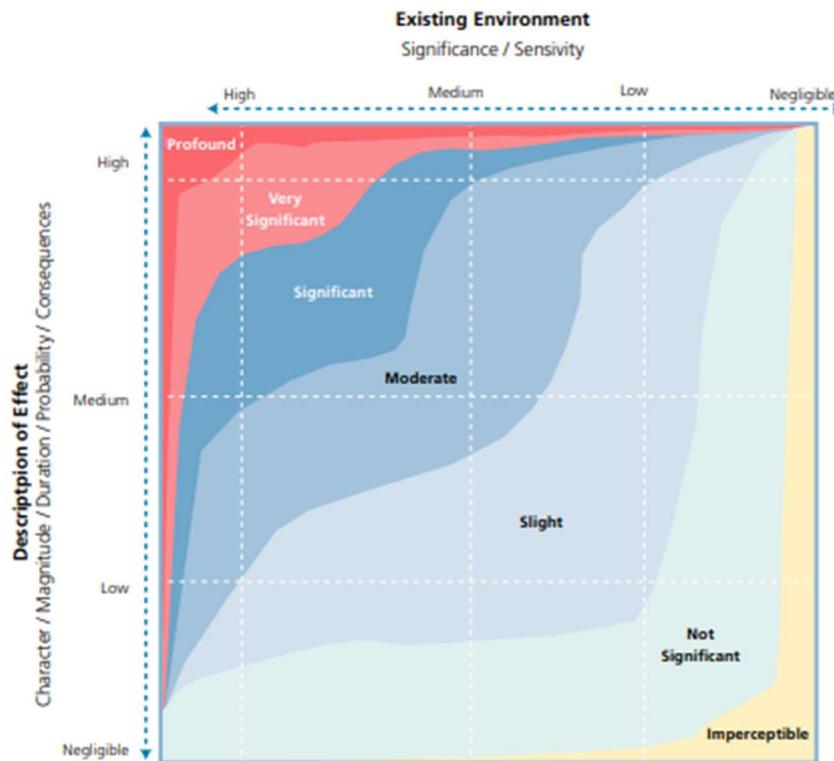
2.39 Within the EIAR, a description is provided within the various topic chapters of the relevant aspects of the current state of the environment (baseline scenario). An outline is also provided of the likely evolution of the baseline environment in the absence of implementation of the Proposed Development (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.

- 2.40 The assessments presented in this EIAR are largely based on the comparison of expected impacts compared with current or recent baseline environmental conditions. This is with the exception of topics such as air quality, noise, traffic and transport, landscape and visual assessments which factor in future baseline changes.
- 2.41 These approaches are explained in further detail in the relevant chapters.
- 2.42 Establishment of the current and future baseline allowed effects to be assessed and reported by comparing a scenario with the Proposed Development against one without the Proposed Development.
- 2.43 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.

Prediction of Impacts and Effects and Development of Mitigation Measures

- 2.44 The environmental impact assessment of the project has been made with regard to the 'Guidelines on the information to be contained in Environmental Impact Assessment Reports', published by the EPA (Environmental Protection Agency, 2022); and the 'Draft Advice Notes for Preparing Environmental Impact Statements' (Environmental Protection Agency, 2015).
- 2.45 Assessments of technical disciplines have been made in accordance with applicable legislation, identified guidance and industry best practice. For several topic areas, forecasting methods developed by the respective professional bodies have been followed in order for an assessment of significance of impacts to be made. For topics where there is no topic specific guidance available, a common framework of assessment criteria and terminology has been used throughout this EIAR based on the EPA's Guidelines on the Information to be Contained in EIARs (Environmental Protection Agency, 2022).
- 2.46 This common framework follows a 'matrix approach' to environmental assessment which is based on the value (sensitivity) of the receptor and the characteristics of the impact (magnitude and nature). 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 descriptive terminology identified by the EPA has been reproduced below for the sake of reference for this document. The consistent use of this terminology provides clarity in the method of the assessment and meaning of the conclusions.
- 2.47 The EPA's method of determining the significance of impacts that is described below and portrayed in Figure 3.4 of the updated Guidance (EPA 2022) has been used in this EIAR. There are seven generalised degrees of impact significance that are commonly used in EIA, which are: Imperceptible, Not Significant, Slight, Moderate, Significant, Very Significant and Profound, the definitions of which are given under Description of Effects below.

Figure 2.3: Chart Showing Typical Classifications of the Significance of Effects (taken from the EPA Guidelines (2022))



There are seven generalised degrees of effect significance that are commonly used in EIA. Imperceptible, Not Significant, Slight, Moderate, Significant, Very Significant and Profound. Generalised definitions of each of these are provided in Table 3.4. When more specific definitions exist within a specialised factor or topic, e.g. biodiversity, these should be used in preference to these generalised definitions. (ref. Advice Notes⁶⁸.)

Assessment of Significant Effects

2.48 As stated in the 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA, 2022), an assessment of the likely significant effects of a project is a statutory requirement of the EIAR process. The criteria for the presentation of the characteristics of potential significant effects will be described with reference to the magnitude, spatial extent, nature, complexity, probability, duration, frequency, reversibility, cumulative effect and transboundary nature (if applicable) of the effect.

2.49 It may be useful to consider such impacts in light of the criteria listed in Annex III of the amended Directive.

1. magnitude and spatial extent of the impact (for example geographical area and size of the population likely to be affected);
2. nature of the impact;
3. transboundary nature of the impact;
4. intensity and complexity of the impact;
5. probability of the impact;

6. expected onset, duration, frequency and reversibility of the impact;
7. cumulation of the impact with the impact of other existing and/or approved projects; and
8. possibility of effectively reducing the impact.

Descriptions of Effects

- 2.50 Each effect usually needs to be qualified to provide a comprehensive description of the predicted effect on receptors. The EIAR should focus on the likely, significant effects.
- 2.51 The extent to which the effects of major accidents and/or disasters are examined in the EIAR should be guided by an assessment of the likelihood of their occurrence (risk). This may be supported by general risk assessment methods or by systematic risk assessments required under other regulations, e.g., a COMAH (Control of Major Accident Hazards involving Dangerous Substances) assessment.
- 2.52 The potential for a project to cause risks to human health, cultural heritage or the environment due to its vulnerability to external accidents or disasters is considered where such risks are significant, e.g., the potential effects of floods on sites with sensitive facilities. Where such risks are significant then the specific assessment of those risks in the form of a Seveso Assessment (where relevant) or Flood Risk Assessment may be required. The EIAR should refer to those separate assessments while avoiding duplication of their contents.

Figure 2.4: Description of Effects (taken from the EPA Guidelines (2022))

<p>Quality of Effects</p> <p>It is important to inform the non-specialist reader whether an effect is positive, negative or neutral.</p>	<p>Positive Effects</p> <p>A change which improves the quality of the environment (for example, by increasing species diversity, or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).</p>
	<p>Neutral Effects</p> <p>No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.</p>
	<p>Negative/Adverse Effects</p> <p>A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem, or damaging health or property or by causing nuisance).</p>
<p>Describing the Significance of Effects</p> <p>‘Significance’ is a concept that can have different meanings for different topics – in the absence of specific definitions for different topics the following definitions may be useful (also see <i>Determining Significance</i>).</p>	<p>Imperceptible</p> <p>An effect capable of measurement but without significant consequences.</p>
	<p>Not Significant</p> <p>An effect which causes noticeable changes in the character of the environment but without significant consequences.</p>
	<p>Slight Effects</p> <p>An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.</p>
	<p>Moderate Effects</p> <p>An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.</p>
	<p>Significant Effects</p> <p>An effect which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment.</p>
	<p>Very Significant</p> <p>An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment.</p>
	<p>Profound Effects</p> <p>An effect which obliterates sensitive characteristics.</p>
<p>Describing the Extent and Context of Effects</p> <p>Context can affect the perception of significance. It is important to establish if the effect is unique or, perhaps, commonly or increasingly experienced.</p>	<p>Extent</p> <p>Describe the size of the area, the number of sites and the proportion of a population affected by an effect.</p>
	<p>Context</p> <p>Describe whether the extent, duration or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)</p>

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<p>Describing the Probability of Effects</p> <p>Descriptions of effects should establish how likely it is that the predicted effects will occur so that the CA can take a view of the balance of risk over advantage when making a decision.</p>	<p>Likely Effects</p> <p>The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.</p>
	<p>Unlikely Effects</p> <p>The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.</p>
<p>Describing the Duration and Frequency of Effects</p> <p>‘Duration’ is a concept that can have different meanings for different topics – in the absence of specific definitions for different topics the following definitions may be useful.</p>	<p>Momentary Effects</p> <p>Effects lasting from seconds to minutes.</p>
	<p>Brief Effects</p> <p>Effects lasting less than a day.</p>
	<p>Temporary Effects</p> <p>Effects lasting less than a year.</p>
	<p>Short-term Effects</p> <p>Effects lasting one to seven years.</p>
	<p>Medium-term Effects</p> <p>Effects lasting seven to fifteen years.</p>
	<p>Long-term Effects</p> <p>Effects lasting fifteen to sixty years.</p>
	<p>Permanent Effects</p> <p>Effects lasting over sixty years.</p>
	<p>Reversible Effects</p> <p>Effects that can be undone, for example through remediation or restoration.</p>
	<p>Frequency of Effects</p> <p>Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).</p>

Describing the Types of Effects	Indirect Effects (a.k.a. Secondary or Off-site Effects) Effects on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
	Cumulative Effects The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.
	'Do-nothing' Effects' The environment as it would be in the future should the subject project not be carried out.
	'Worst-case' Effects The effects arising from a project in the case where mitigation measures substantially fail.
	Indeterminable Effects When the full consequences of a change in the environment cannot be described.
	Irreversible Effects When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
	Residual Effects The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic Effects Where the resultant effect is of greater significance than the sum of its constituents (e.g. combination of SOx and NOx to produce smog).

2.53 The approach to assigning significance of effect included reasoned argument, the professional judgement of competent experts and using effective consultation to ensure the advice and views of relevant stakeholders were taken into account.

Design and Mitigation

2.54 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 effect (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.

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

1. Embedded mitigation: project design principles adopted to avoid or prevent adverse environmental effects (as described in the Project Description, Chapter 3.0), and including

- fixed procedural commitments such as the development and adoption of a Environmental Monitoring Plan; 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).
- 2.56 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.

Cumulative Impact Assessment

- 2.57 Each technical chapter of the EIAR includes a cumulative assessment which considers the impacts arising from the project alone and cumulatively with other relevant plans, projects and activities.
- 2.58 The cumulative effects were assessed when the conclusions of individual environmental topic assessments had been reached and reported. The assessment of cumulative effects from different projects are discussed within the relevant technical chapters.

Methodology for the Cumulative Assessment of Projects

- 2.59 The potential for cumulative effects to arise from the proposed development was assessed across key areas, including population & human health, biodiversity, land, soils and geology, water, climatic factors, landscape, cultural heritage, and material assets. Each relevant section of this Environmental Impact Assessment Report concludes with a cumulative impact assessment, where appropriate, to ensure comprehensive consideration of potential combined effects.
- 2.60 The cumulative impact assessment evaluates how the proposed quarry development may influence the surrounding environment when considered alongside other relevant permitted, proposed, and completed projects in the vicinity of the proposed site.

Projects Considered in Cumulative Assessment

- 2.61 Relevant assessment material was gathered on developments within the area surrounding the proposed site. This material, compiled from the Galway County Council online Planning Register and reviews of relevant Environmental Reports or Environmental Impact Assessment Reports (EIARs), as well as planning application details and drawings, provides insights into past and future projects, their activities, and their environmental impacts.
- 2.62 Given the small scale and temporary nature of nearby residential and rural developments, there is no potential for these minor developments to create in-combination impacts with the proposed development.
- 2.63 For developments already constructed and operational, their impacts are reflected in the baseline conditions established within Chapters 4 to 15 of this EIAR.
- 2.64 The following developments have been included in the cumulative assessment:

Existing Quarry Operations at the Proposed Site

- 2.65 This includes ongoing quarry activities, such as extraction, processing, and dewatering. The current rate of production and existing environmental controls were reviewed to evaluate their interaction with the proposed development.

Existing Manufacturing Operations on Site

- 2.66 The on-site manufacturing of concrete and asphalt products was considered. These operations are already regulated under planning conditions and discharge licenses, providing existing environmental controls.

Third-Party Quarries in the Wider Area

- 2.67 Mortimer Quarry and McTigue Quarry (Belclare, Tuam), c. 8 km north within the same groundwater body. Neither abstracts nor discharges groundwater. Given the separation distance, hydrogeological context and operational characteristics, no cumulative water-environment interaction with the proposed development is anticipated (see also Chapter 8).

Wind Energy Development

- 2.68 **Laurclavagh Renewable Energy Development (wind farm and associated underground grid connection).** This proposal lies within the wider Clare–Corrib groundwater body and at several kilometres' remove from the quarry (closest infrastructure c. 2–3 km). The scheme has been reviewed for potential cumulative pathways with the quarry, namely:

- **Hydrology/hydrogeology:** The wind farm's NIS/EIAR cumulatively assessed construction, operation and decommissioning within the relevant sub-basins and concluded no significant cumulative effects on hydrology or hydrogeology. There are no shared discharges, and the grid connection is to be reinstated following construction. The quarry dewateres to a managed sump with licensed controls; the wind farm does not rely on dewatering. On this basis—and as further set out in Chapter 8—no cumulative water-environment effects are predicted.
- **Biodiversity (birds/bats):** The quarry extension does not introduce turbines or tall structures and therefore does not share a collision-risk or displacement pathway with the wind farm. Potential shared disturbance pathways are minimal given:
 - (i) spatial separation;
 - (ii) the quarry's predominantly daytime, ground-level activities; and
 - (iii) absence of qualifying interest bird or bat roost features within the application site.

(The AA (see AA Section 5.2) has also considered this project in-combination with the quarry and concluded no likely significant effects on Lough Corrib SAC/SPA via hydrological or disturbance pathways.)

- **Air/noise/traffic:** Due to separation, different activity profiles and existing controls at both projects, no material cumulative dust, noise or traffic effects are anticipated.
- 2.69 **Conclusion on Wind Energy Cumulative:** Having regard to pathway analysis, separation distances, existing controls and the findings of both Chapter 8 (Water) and the AA in-combination appraisal, the Laurclavagh wind farm would not give rise to significant cumulative effects with the proposed quarry extension.

Prediction of Residual Impacts and Effects

- 2.70 Once the embedded mitigation and essential mitigation measures had been 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).
- 2.71 Monitoring measures are proposed in the EIAR where there is uncertainty regarding the significance of, or the predicted levels of residual effects or where monitoring is necessary to modify control measures on an ongoing basis to control residual effects.

'Do-nothing' Scenario

- 2.72 Each technical chapter of the EIAR includes an assessment of the situation or environment which would exist if a proposed, development, project or process were not carried out. This scenario takes account of the continuation or change of current management regimes, as well as the continuation or change of trends currently evident in the environment.