14 Major Accidents and Disasters

14.1 Introduction

This remedial Environmental Impact Assessment Report (rEIAR) has been prepared to accompany a substitute consent application for an existing, disused quarry (the 'Project') at lands (the 'Application Site' or 'Site') within in the townland of Coolsickin or Quinsborough, Monasterevin, Co. Kildare, Co. Kildare. The Project is located within the administrative boundary of Kildare County Council, (KCC).

This chapter of the rEIAR has been prepared by WSP Ireland Consulting Ltd (WSP) and addresses the vulnerability of the Project to relevant major accidents and/or disasters, and the potential for the Project to have caused major accidents and/or disasters.

The discussion is supported by a risk assessment which considers the likelihood of major accidents or disasters occurring combined with the severity of their associated impacts.

14.1.1 Technical Scope

The EIA Directive (Directive 2011/92/EU, as amended by Directive 2014/52/EU), requires that an assessment is made of '*the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned*'.

The consideration of major accidents and disasters seeks to assess the relevant accidents and disasters which the Project is vulnerable to, and the relevant accidents and disasters that the Project could give rise to. These unforeseen and unplanned events are to be assessed on the risk of their occurrence, however in view of the retrospective nature of this rEIAR the scope of this section is limited to a review of previous operations at the Project.

14.1.2 Geographical and Temporal Scope

The assessment directly covers the physical extent of the EIA boundary for the Application Site as shown in Figure 14-1 and the assessment area has been extended as appropriate to identify the relevant material assets surrounding the Project. In the context of the rEIAR, the EIA boundary contains lands which included extraction and associated working areas associated with the Project. The EIA boundary encompasses the substitute consent (the Planning Application) boundary. The substitute consent boundary is shown on the drawing set which accompanies the planning application.

The temporal scope of this assessment covers the baseline of this rEIAR (1 January 2000) through to the existing condition at the Site on 31 December 2006 by which date operations have ceased onsite and no further Project activities occurred within the Site. This assessment period equates to approximately six years and is identified as 'short-term' duration (those lasting one to seven years).

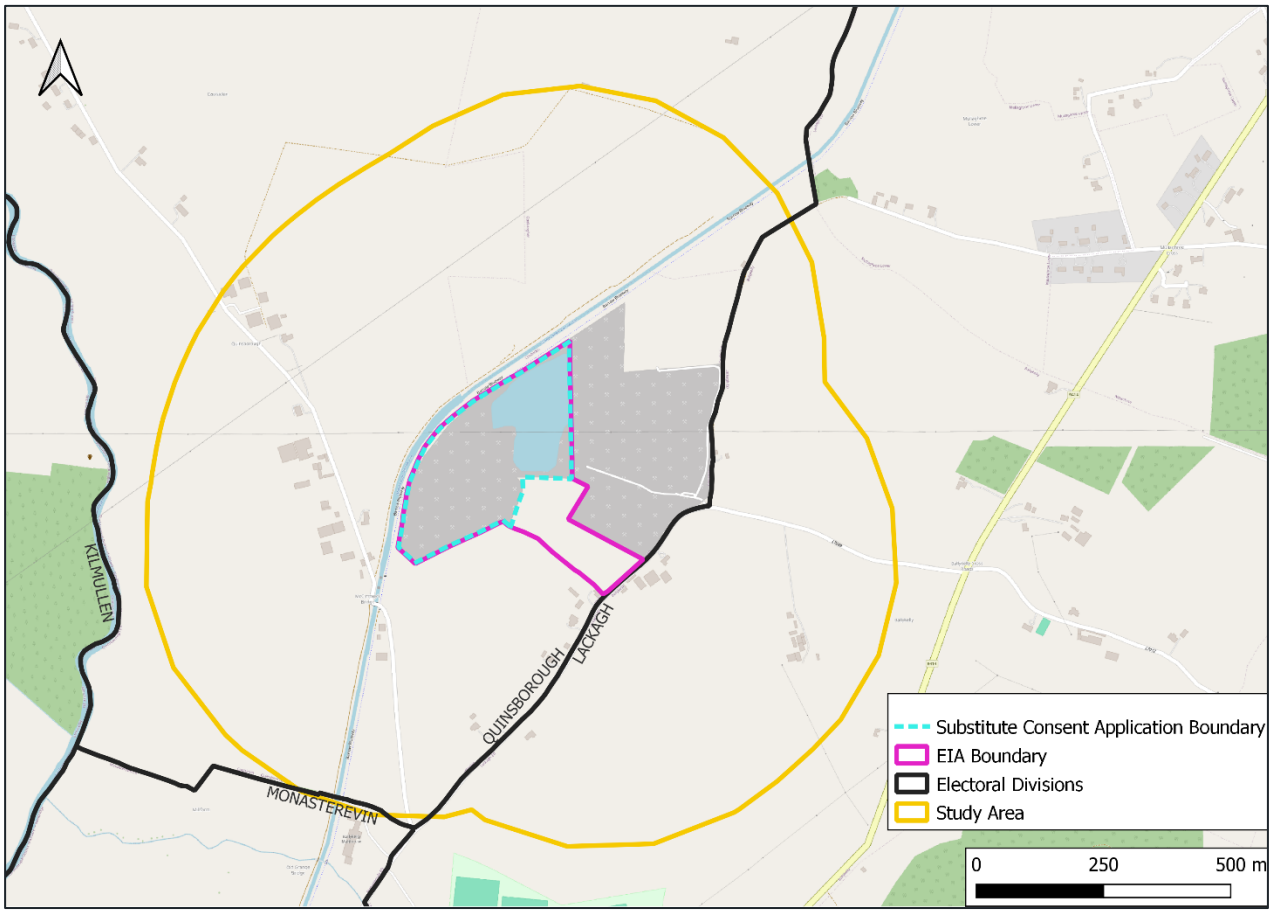

Figure 14-1 - Location of the Application Site, EIA Boundary and Study Area.

14.1.3 Comment on accident occurring outside of assessment period

The quarry has been informally used by the public for swimming following the closure of the Project operation in 2006 and collection of waters within the quarry void. In 2012 (outside of the assessment period) a member of the public drowned within the Application Site.

This accident occurred prior to Bison Quarries Limited ownership of the lands at the Application Site. Since purchasing the lands, Bison Quarries Ltd have not and do not provide permission for the public to access the Application Site for amenity uses. Bison Quarries Ltd maintain a security gate and warning signage at the present-day entrance to the Application Site.

14.1.4 Project Description Summary

The Project seeking substitute consent consists of extraction of sand, gravel and rock over an area of 7.87 ha through blasting, mechanical excavation and rock breaking along with aggregate processing and stockpiling. The Project was operational between the years 2000-2006.

A full project description is presented in Chapter 2 (Project Description).

14.2 Legislative and Policy Context

14.2.1 Legislation and definitions

Article 5 of the Environmental Impact Assessment (EIA) Directive (Directive 2011/92/EU, as amended by Directive 2014/52/EU) sets down the minimum information to be supplied in an EIAR, including data and information to be included by the developer, as identified in Paragraphs 1 to 10 of Annex IV of the EIA Directive. Paragraph 5(d) of Annex IV identifies that:

> *A description of the likely significant effects of the project on the environment resulting from, inter alia: (d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters).*

Furthermore, in Paragraph 8 of Annex IV:

> *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. […] 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 2014/52/EU Directive was transposed into Irish law through the 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.

These regulations do not provide a definition of ‘major accident’ or ‘disaster’, however for the purpose of EIA, WSP defines the following key terms. These definitions are drawn from regulatory guidance, used in hazardous industries:

- Major accident – An occurrence resulting from an uncontrolled event caused by a manmade activity or asset leading to serious harm to receptors.
- Disaster – A natural occurrence leading to serious harm to receptors.
- Serious harm:
  - Serious harm to the environment – loss or significant detriment to populations of species or organisms, valued sites (including designated sites), valued cultural heritage sites, contamination of drinking water supplies, ground or groundwater, or harm to environmental receptors.
  - Serious harm to human populations – harm considered substantial i.e., death(s), multiple serious injuries or a substantial number requiring medical attention.

The effects of both major accidents and disasters can be either immediate or delayed.

14.2.2 Relevant Policies and Plans

- The Kildare County Development Plan (CDP) 1999 is the strategy document for County Kildare which covers most of the temporal scope of this assessment period. The key policies and objectives of this plan are listed in Section 2.5.1 of the Project Description (Chapter 2).
- The Kildare CDP 2005-2011 was adopted on 18 May 2005 and covers the temporal scope from this date to 31 December 2006. The key policies and objectives of this plan are listed in Section 2.5.2 of the Project Description (Chapter 2).

14.2.3 Relevant Guidance

There is no specific Irish guidance available for the assessment of major accidents and disasters in the context of EIA. A number of alternative sources of guidance have been considered in the course of this assessment, these are identified below.

A Framework for Major Emergency Management, Guidance Document 1, A Guide to Risk Assessment in Major Emergency Management, Department of the Environment, Heritage & Local Government (DoEHLG), (January 2010)

In terms of national guidance, in January 2010 the then Department of Environment, Heritage and Local Government (DEHLG) produced 'Guidance Document 1, A Guide to Risk Assessment in Major Emergency Management' (DEHLG 2010 Guidance), which supports and provides additional guidance on the risk assessment process for the 2006 framework for major emergency management, (A Framework for Major Emergency Management, Government of Ireland, 2006).

Major Accidents and Disasters in EIA: A Primer, Institute of Environmental Management and Assessment (IEMA) and ARUP, (September 2020)

This Primer on the assessment of major accidents and disasters in the context of EIA was published by the IEMA in September 2020 with the main aim of increasing awareness of the major accidents and/or disasters EIA topic and its application. The document offers an assessment methodology based on known current UK practice and identifies key terminology that can be used in an assessment. The Primer was developed to generate comment and discussion, from which future guidance and institutional and regulatory change may evolve. Major accidents and disasters in the Primer are defined as:

- Major Accidents: Events that threaten immediate or delayed serious environmental effects to human health, welfare and/or the environment and require the use of resources beyond those of the client or its appointed representatives to manage. Whilst malicious intent is not accidental, the outcome (e.g., train derailment) may be the same and therefore many mitigation measures will apply to both deliberate and accidental events; and
- Disaster: May be a natural hazard (e.g., earthquake) or a man-made/external hazard (e.g., act of terrorism) with the potential to cause an event or situation that meets the definition of a major accident.

LA 104 - Environmental Assessment and Monitoring, Design Manual for Roads and Bridges, Highways England, Revision 1, (August 2020)

In the context of EIA there is no dedicated Irish guidance for the assessment of major accidents and disasters for projects. In the absence of such guidance this document has been referred to. This document was published by Highways England for assessing, reporting and monitoring the environmental effects of certain projects in line with the requirements of the EIA Directive. In the context of major accidents and disasters the guidance identifies that the assessment shall be made with regard to:

- Vulnerability of the project to risks of major events; and
- Any consequential changes in the predicted effects of that project on environmental factors.

Relevant European Commission guidance considered as part of this assessment included: Environmental Impact Assessment of Projects – Guidance on the Preparation of the Environmental Impact Assessment Report (2017)

The guidance identifies key considerations on accidents and disaster risks and identified that EIARs should address issues such as:

- What can go wrong with a Project?
- What adverse consequences might occur to human health and to the environment?
- What is the range of magnitude of adverse consequences? ϒ How likely are these consequences?
- What is the Project's state of preparedness in case of an accident/disaster?
- Is there a plan for an emergency situation?

The Environmental Protection Agency (EPA) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (May 2022)

This guidance includes the requirement to describe the risk of accidents (with regard to substances or technologies used) in the characteristics of the project. These guidelines state that the EIAR should attempt to identify a reasonably foreseeable worst-case scenario as a context for 'likely significant effects'. They furthermore note that to address unforeseen or unplanned effects, the EIA Directive requires that the vulnerability of the project to risk of major accidents and /or disasters relevant to the project concerned are taken into account, and that the EIAR explicitly addresses this issue. The extent to which the effects of major accidents and / or disasters are examined should be guided by an assessment of the likelihood of their occurrence, which can be supported by general risk assessment methods.

Department of Housing, Planning and Local Government. Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018).

14.3 Assessment Methodology and Significance Criteria

14.3.1 Assessment Aims

As identified above, the key objectives of this assessment are to assess:

- The vulnerability, if any, of the Project to potential major accidents or disasters, which includes both natural (e.g., earthquakes) and man-made disasters (e.g., technological hazards);
- The Project's potential, if any, to cause major accidents and/or disasters, (with explicit reference to considerations for human health, cultural heritage, and the environment); and,
- The identification of mitigation or control, and/or emergency preparedness measures which are in place, or that may have needed / need to be implemented, to prevent or mitigate the likely significant adverse effects of such events on the environment.

14.4 Baseline and Subsequent Conditions

14.4.1 Natural Disasters

Due to Ireland's geographic location, it is less vulnerable to natural disasters such as earthquakes and tsunamis than other regions across the globe.

With regards to natural disasters, severe weather events such as flooding pose the greatest threat to Ireland. For example, the nearby town of Monasterevin has previously flooded in the years 1997 and 2002, which was caused by fluvial flooding of existing watercourses (OPW, 2024). However, there have been no previously recorded flood events within the Project's EIA boundary (OPW, 2024).

14.4.2 Major Accidents

The occurrence of a major geotechnical hazard, fire, explosion or fuel spillage resulting from operations at the quarry Project, relating to the control of major-accident hazards involving dangerous substances, has the potential to give rise to a major accident or disaster, immediate or delayed. There have been no events such as these recorded at the Project during the assessment period.

14.5 Selection of Sensitive Receptors

Human receptors were identified through inspection of Google and surveys of the Site surrounds. These receptors have been identified in Figure 14-2. Environmental and historical environment receptors were obtained with the National Planning Application Viewer, Google Maps, and the Eircode Finder map viewer.

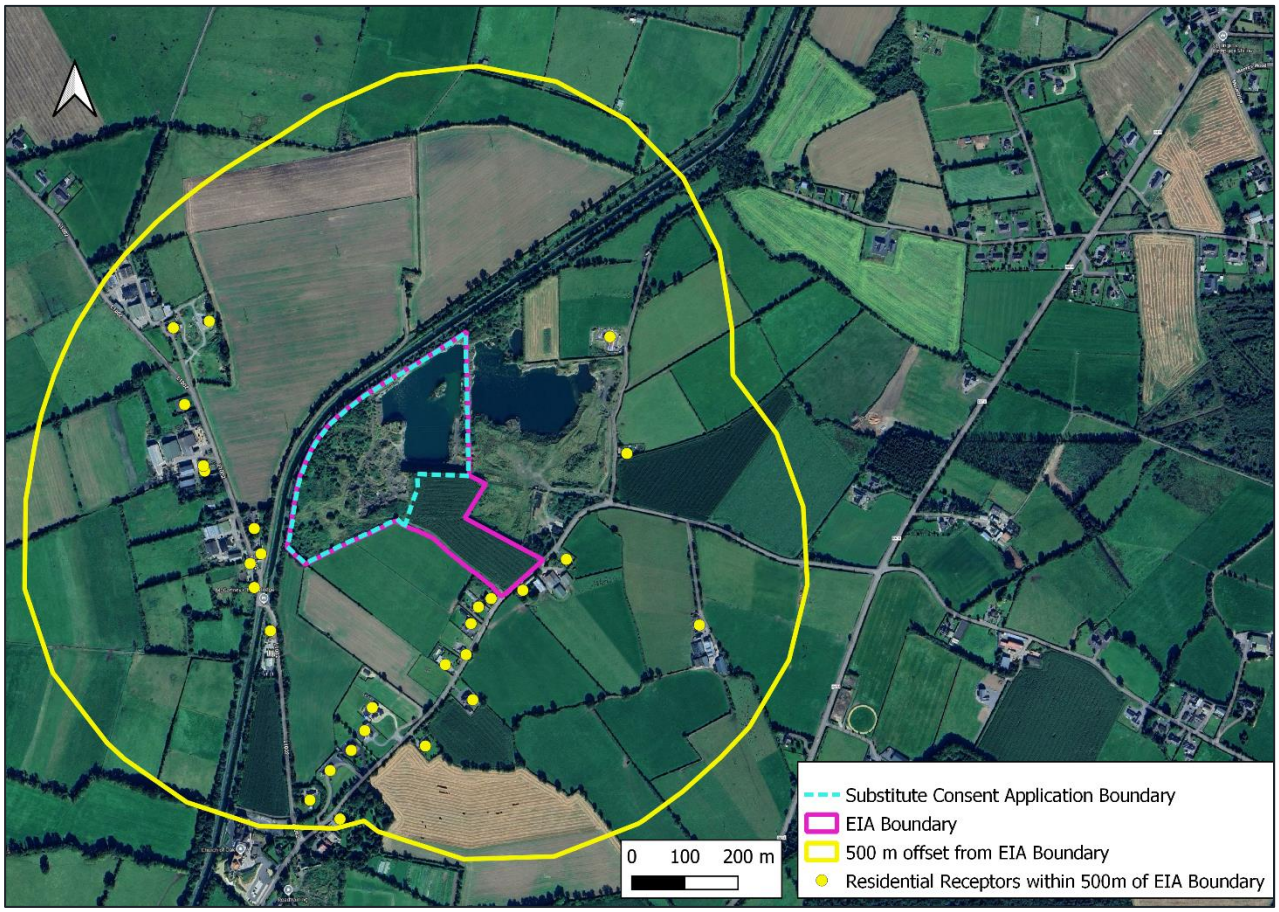

Figure 14-2 - Location of residential receptors within 500 m of the EIA boundary.

Note that the residential development marked to the north-east of the EIA Boundary (yellow dot) in Figure 14-2 was not a receptor during the assessment period as this property was not built until after 2006.

14.6 Characteristics of the Project

A detailed Project Description has been provided within Chapter 2 of this rEIAR.

14.7 Potential Effects

The main potential impacts and associated effects that have been considered in the assessment relate to the following:

- Geotechnical hazard i.e. collapse of a quarry wall;
- Accident during blasting;
- Fire during operation;
- Accident involving physical hazards such as heavy plant or falls from height;
- Spillage of chemicals or fuels to the ground;
- External major accident affecting the quarry; and,
- Flooding.

These potential impacts during the assessment period of 1 January 2000 to 31 December 2006 are considered and assessed in Table 14-1.

No quarrying activities have taken place at the Site since the Applicant acquired the lands in 2022.

Table 14-1 – Potential Effects

Potential major accident or disaster	Receptor	Potential MA&D (Y/N)	Occurrence during assessment period (Y/N)	Risk (Significant / Not Significant)	Justification
Geotechnical hazard i.e. collapse of a quarry wall	Quarry workforce	Y	N	Not Significant	There are no known records of any geotechnical assessment reports being completed during the assessment period 2000–2006. There are no known recorded collapses or deaths associated with Project activities from during the assessment period.
Accident during blasting	Quarry workforce Members of the public	Y	N	Not Significant	It is predicated that blasting occurred during the assessment period. It is unknown if safe working practices were employed. There are no known recorded deaths associated with Project activities from during the assessment period.
Fire during operation	Quarry workforce Members of the public Environmental receptors	Y	N	Not Significant	There are no known records of any fires being reported or observed during the assessment period. There are no known recorded deaths associated with Project activities from during the assessment period.

Potential major accident or disaster	Receptor	Potential MA&D (Y/N)	Occurrence during assessment period (Y/N)	Risk (Significant / Not Significant)	Justification
Accident involving physical hazards such as heavy plant or falls from height	Quarry workforce	Y	N	Not Significant	There are no known records of any accidents being reported or observed during the assessment period. There are no known recorded deaths associated with Project activities from during the assessment period.
Spillage of chemicals or fuels to the ground	Quarry workforce Members of the public Environmental receptors	Y	N	Not Significant	There are no known records of any spillages of chemicals or fuels being reported during the assessment period. Given the scale of the Project and the predicated type and number of plant and vehicles on the Site during the Assessment period is it considered that there is very limited potential for significant leaks and/or spills to chemical or fuels to have occurred. There are no known recorded deaths associated with Project activities from during the assessment period.
External major accident affecting the quarry	Quarry workforce	N	N	N/A	There are no relevant external industries in proximity to the Site to

Potential major accident or disaster	Receptor	Potential MA&D (Y/N)	Occurrence during assessment period (Y/N)	Risk (Significant / Not Significant)	Justification
					result in a major accident that would affect the quarry workforce. There was no potential of significant effects on the quarry workforce arising from external major accidents during the assessment period.
Flooding	Quarry workforce	N	N	N/A	There are no records of any floods being reported or observed during the assessment period. The OPW's Flood Info website indicates that no flooding occurred at the Site during the assessment period.

14.8 Remedial Measures and Monitoring

No remedial measures or monitoring are proposed.

14.9 Residual Effects

The assessment concludes that the activities at the Site during the assessment period of assessment have not resulted in accidents or disasters that are deemed to be ‘Major’. Therefore, there has been at most an ‘Imperceptible’ effect of the Project activities on the surrounding environment in regard to major accidents and disasters.

14.10 Cumulative Effects

Assuming other developments in the area have incorporated widely adopted good design, practice and mitigation measures it is considered that there have been no significant cumulative effects of the Project with other similar developments in the locality.

14.11 Difficulties Encountered

No particular difficulties were encountered in the preparation of this chapter of the rEIAR.

14.12 Summary and Conclusions

This assessment considers the potential impacts and effects of the Project on major accidents and disasters over the review period from 2000–2006.

The main receptors that could be affected by major accidents or disasters due to activities undertaken at the Project through the review period were identified and potential effects were assessed.

The assessment concludes that the activities at the Project during the assessment period have not resulted in accidents or disasters that are deemed to be ‘Major’.

14.13 References

Department of Housing, Local Government and Heritage. 2024. National Planning Application Map Viewer. Available at: National Planning Application Map Viewer - My Plan (Accessed: November 2024).

Department of the Environment, Climate and Communications. 2024. Eircode Finder. Available at: Find or check an Eircode (Accessed: November 2024)

EPA. 2022. Guidelines on the information to be contained in Environmental Impact Assessment Reports.

Google. 2024. Google Maps. Available at: Monasterevin - Google Maps (Accessed: November 2024).

OPW. 2018. Flood Risk Management Plan: Liffey and Dublin Bay.

OPW. 2025. Past Flood Events Database. (Accessed: January 2025)