14 Major Accidents and Disasters

14.1 Introduction

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

The Proposed Project is the restoration of a disused quarry by import of clean soil and stone from construction and demolition. The lands on which the Proposed Project occur (the 'Application site' or Site') are located in the townland of Coolsickin or Quinsborough, Co. Kildare.

The Application Site includes a disused quarry void and associated historical working areas. It also includes a private access road that connects the disused quarry to the public road network, and agricultural lands to the east of that road where it is proposed to locate the temporary facilities required to manage the importation of clean soil and stone required for the Proposed Project.

All lands within the Application Site are within the ownership of the Applicant, Bison Quarries Ltd (BQL).

This EIAR is submitted in support of an application under Section 37L of the Planning and Development Act, as amended.

The following assessment was prepared by Lisa Cleary (B.A. (mod), PIEMA) and Rhian Llewellyn (MGeol, PhD, PIEMA). Lisa is an environmental scientist with over 2 years' experience, and Rhian is a geologist and EIA specialist with over 9 years' experience.

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 Proposed Project is vulnerable to, and the relevant accidents and disasters that the Proposed Project could give rise to. These unforeseen and unplanned events are to be assessed on the risk of their occurrence.

14.1.2 Geographical and Temporal Scope

The geographical study area for the assessment covers the EIA boundary (identified on Figure 14-1) and a study area extending 500 m from the EIA boundary, because most

potential effects from accidents and disasters relevant to the Proposed Project are anticipated to occur within the project footprint (i.e. the Application Site) or immediately adjacent to it. In the context of the EIA, the Application Site contains lands which form the disused quarry site to the north, and agricultural lands to the south.

The temporal scope of this assessment covers the construction phase (comprising enabling works and infilling works) and the restoration phase (largely comprising aftercare and maintenance activities of restored lands). The combined duration of these phases is predicted to 13 years. Detailed description of the Proposed Project phasing is presented in Chapter 2 (Project Description).

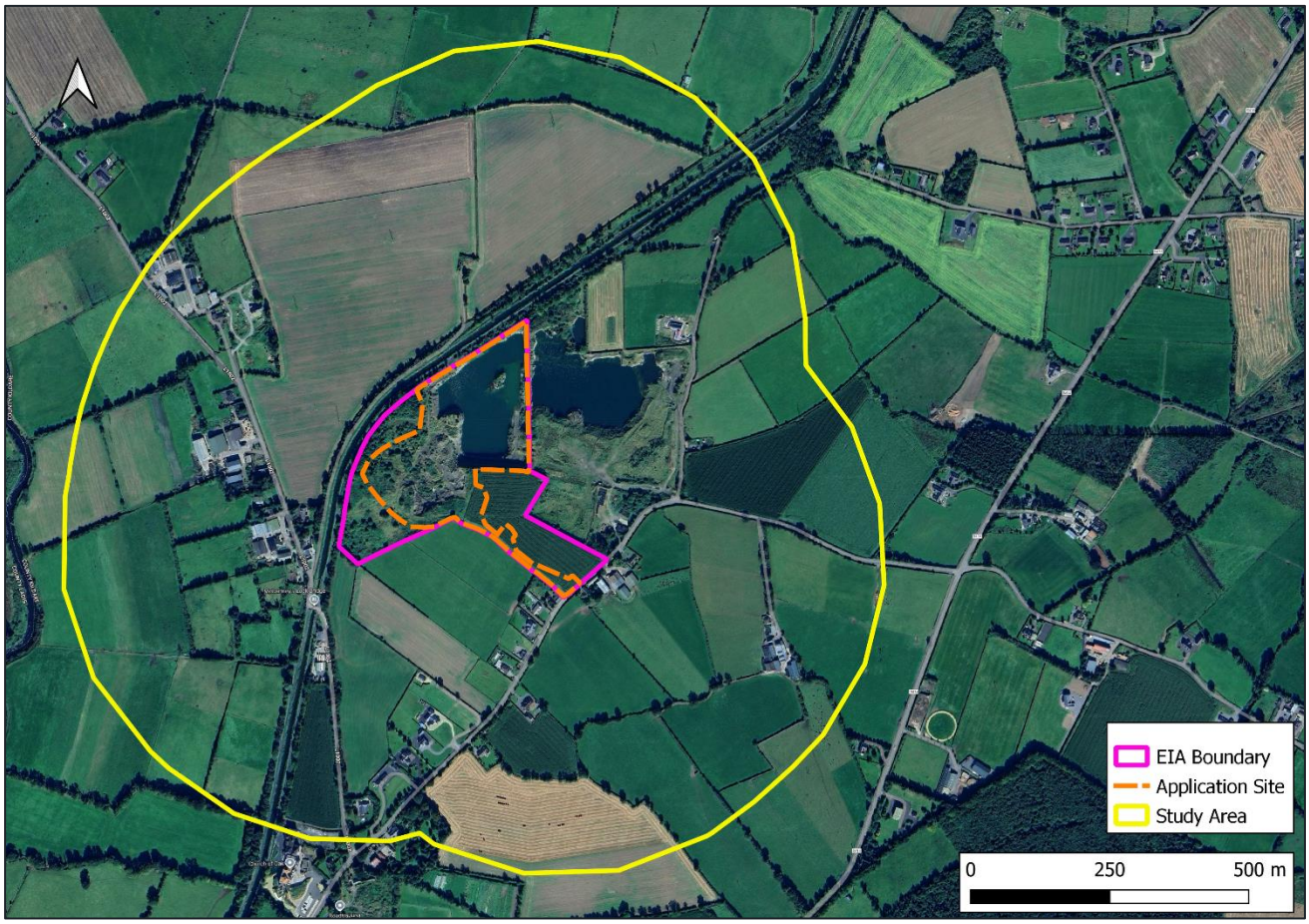

Figure 14-1 - EIA Boundary, Application Site and study area overlain on Google Maps Satellite Imagery.

14.1.3 Project description summary

The Proposed Project consists of the restoration of lands through the import of approximately 720,000 tonnes clean soil and stone as by-product (non-waste) from development sites to infill a disused historical quarry and raise ground levels to tie in with ground levels of surrounding land.

Restoration of the lands will be to agricultural grassland, an artificial waterbody, and a hedgerow habitat with the lands returned to their pre-extraction agricultural use.

The proposed duration of infilling is 10 years depending on market conditions for the anticipated acceptance of clean soil and stone, and a further 3 years for the completion of final restoration activities.

The Application Site is located in the townland of Coolsickin or Quinsborough, Co Kildare. The Application Site is accessed by a privately-owned access road connecting to a local road (L7049).

The following temporary facilities will be installed and maintained during the life of the Proposed Project:

- office and fully serviced welfare facilities;
- weighbridge and associated portacabin;
- closed-system wheel wash;
- 6 no. parking bays;
- 2 no. waste inspection bays and 1 no. bunded waste quarantine area;
- hardstanding area (vehicle movement and storage); and,
- surface water drainage infrastructure from hard standing and discharge to ground, including 2 no. interceptors and 2 no. soakaways.
- security features, including security gates and fencing.
- Power supply. It is intended that approval will be sought for a connection to the ESB Network for the office and fully serviced welfare facilities. Diesel generators will be used to power mobile lighting, if required.

The Proposed Project site entrance and private access road will be upgraded and realigned. These will be retained following to completion of the Proposed Project.

A full project description in provided in Chapter 2 of this EIAR.

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; and 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 2023-2029 was adopted on 9th December 2022. The key policies and objectives of this current plan are listed in Section 2.9.4. 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?
- 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 Proposed Project to potential major accidents or disasters, which includes both natural (e.g., earthquakes) and man-made disasters (e.g., technological hazards);
- The Proposed 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 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, 2025). However, there have been no previously recorded flood events within the Proposed Project's EIA boundary (OPW, 2025).

14.4.2 Major Accidents

No extraction activities have occurred on the Site since the closure of the historical quarry operation in 2006. The collect waters in the quarry void space that formed following the closure of the historical quarry represent a potential hazard to human health (e.g. drowning). Safety signage is affixed to the security gate that is the single authorised access to the disused quarry.

14.5 Do Nothing Scenario

Without the Proposed Project it is assumed that the baseline conditions would remain, as described above.

14.6 Selection of Sensitive Receptors

Human receptors were identified through inspection of Google Maps 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.

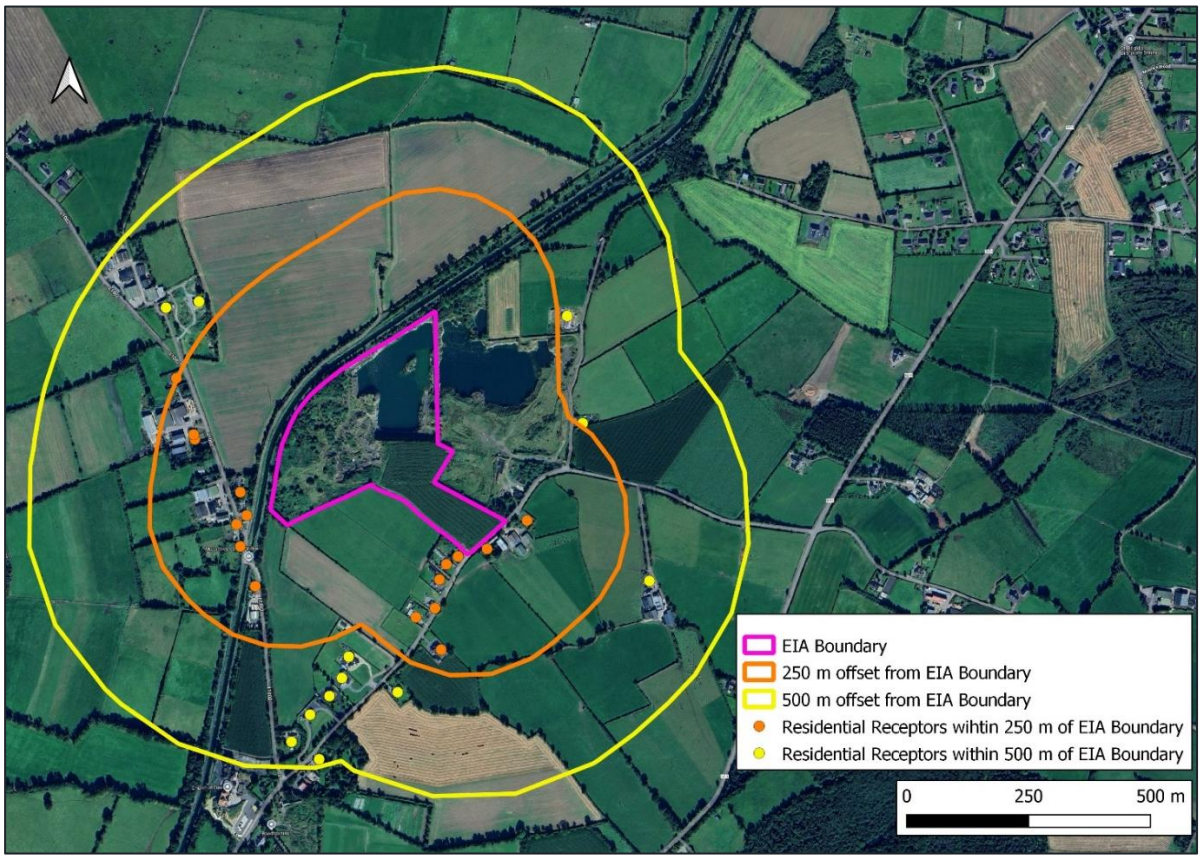

Figure 14-2 - Location of residential receptors within 500 m of the EIA boundary.

14.7 Characteristics of the Development

A detailed Project Description has been provided within Chapter 2 of this EIAR and a summary is provided in Section 14.1.3 above.

14.8 Potential Effects

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

- Geotechnical hazard associated with infill slopes during construction;
- 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.

It is noted that given the embedded mitigation and Proposed Project phasing and design, there is predicted to be no potential for major accidents or disasters associated with interaction with ESB infrastructure located on the Site (see Chapter 12 Material Assets of this EIAR).

Potential effects during restoration phase are scoped out given the nature and scale of activities to be carried out with that phase (i.e. planting and associated maintenance and aftercare). As the Proposed Project is to restored lands at a historical quarry with clean soil and stone it is anticipated that there is no potential for major accidents and disasters at the Site in the long-term following the completion of the Proposed Project.

The potential impacts from the Proposed Project are considered and assessed in Table 14-1.

Table 14-1 – Potential Effects

Potential Major Accident or Disaster	Receptor	Potential MA&D (Y/N)	Risk (Significant / Not Significant)	Justification
Geotechnical hazard i.e. collapse of fill material during construction	Workers within the infill areas	Y	Not Significant	Infill will comprise clean soil and stone from C&D. Construction with comply will the methodology set out in Chapter 2 (Project Description) of this EIAR. Fill slopes will be regularly inspected to ensure geotechnical stability of working faces. Given the above, no likely significant adverse effects are predicted to occur.
Fire during operation	Facility workforce Members of the public Environmental receptors	Y	Not Significant	Section 19 of the Safety, Health and Welfare at Work Act 2005 states that '*Every employer shall identify the hazards in the place of work under his or her control, assess the risks presented by those hazards and be in possession of a written assessment (to be known and referred to in this Act as a 'risk assessment') of the risks to the safety, health and welfare at work of his or her employees…'* This includes all hazards, such as those that could lead to fire, and requires that risks be assessed and mitigated as far as is reasonably practicable. Risks to various environmental receptors have further protection under a range of environmental

Potential Major Accident or Disaster	Receptor	Potential MA&D (Y/N)	Risk (Significant / Not Significant)	Justification
				statutes, e.g., groundwater protection; S.I. No. 9 of 2010 - European Communities Environmental Objectives (Groundwater) Regulations 2010. The Proposed Project will also maintain an emergency plan, which identifies demonstrate safe evacuation in event of a fire occurring. These controls and practices will be in place to reduce associated risks of fire. It is also noted that no fuels will be stored on the Site and the fill material (clean soil and stone) will not be flammable/combustible. Given the above, no likely significant adverse effects are predicted to occur.
Accident involving physical hazards such as heavy plant or falls from height	Facility workforce	Y	Not Significant	As stated above, the Safety, Health and Welfare at Work Act 2005 requires that all potentially hazardous work activities must be risk assessed and the potential risks to people must be mitigated as considered necessary. This includes all work activities which involve the potential for physical harm e.g. falls from height or impact by vehicles. The most common accident types in similar types of development are typically relate to physical hazards such as contact with moving machinery

Potential Major Accident or Disaster	Receptor	Potential MA&D (Y/N)	Risk (Significant / Not Significant)	Justification
				and isolation, work at height, and struck by moving or falling object. Safe working practices will be employed at the Site and will be managed by the Applicant in accordance with their environmental management system and documented Health and Safey procedures. (this will confirm with applicable legislation). The implementation of controls and practices will ensure that there are no likely significant effects arising from physical hazards during the operation of the Proposed Project.
Spillage of chemicals or fuels to the ground	Facility workforce Members of the public Environmental receptors	Y	Not Significant	As stated above, the Safety, Health and Welfare at Work Act 2005 requires that all potentially hazardous work activities must be risk assessed and the potential risks to people must be mitigated as considered necessary. This includes all work activities which involve the use of chemicals or fuels. Risks to various environmental receptors have further protection under a range of environmental statutes, e.g., groundwater protection; S.I. No. 9 of 2010 - European Communities Environmental Objectives (Groundwater) Regulations 2010.

Potential Major Accident or Disaster	Receptor	Potential MA&D (Y/N)	Risk (Significant / Not Significant)	Justification
				The use of any hazardous chemicals (e.g., diesel and other oils and lubricants used for plant maintenance) is also regulated and thus their use on Site will continue to be subject to controls following the hierarchy laid out in the Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. No. 299 of 2007). Refuelling of plant and vehicles on site will be carried out by a third-party on-site hardstanding areas using drip mats. Neither fuels nor explosives will be stored onsite. The implementation of these controls and practices will ensure that the are no likely significant effects arising from the potential spillage of chemicals or fuels during the operation of the Proposed Project.
External major accident affecting the quarry	Facility workforce	N	N/A	There are no relevant external industries in proximity to the Site to result in a major accident that would affect the facility workforce.
Flooding	Facility workforce	N	N/A	Run-off from hard-standings used for parking and marshalling of trucks and the main internal road will be directed to surface water drainage infrastructure that will be installed and maintained through the proposed project. Collected surface

Potential Major Accident or Disaster	Receptor	Potential MA&D (Y/N)	Risk (Significant / Not Significant)	Justification
				waters will be discharged to ground via oil/water interceptor. Given the above, no likely significant adverse effects are predicted to occur.

14.9 Mitigation Measures and Monitoring

No mitigation measures or monitoring is proposed as a result of this assessment.

14.10 Residual Effects

With the implementation of practices identified in Table 14-1, no additional mitigation is proposed. It is predicted that the Proposed Project will not result in accidents or disasters that are deemed to be 'Major'. It is considered that the Proposed Project would have no effect on the surrounding environment in regard to major accidents and disasters.

14.11 Cumulative Effects

Assuming other developments in the area have incorporated widely adopted good design, practice and mitigation measures it is predicted that the Proposed Project would not give rise to cumulative effects in-combination with third party-development.

14.12 Difficulties Encountered

No particular difficulties were encountered in obtaining data and undertaking the assessment of major accidents and disasters.

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: January 2025).

Department of the Environment, Climate and Communications. 2024. Eircode Finder. Available at: Find or check an Eircode (Accessed: January 2025)

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

Google. 2025. Google Maps. Available at: Monasterevin - Google Maps (Accessed: January 2025).

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

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