# 14

# MAJOR ACCIDENTS AND DISASTERS

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## 14.1 INTRODUCTION

This remedial Environmental Impact Assessment Report (rEIAR) has been prepared to accompany a substitute consent application for an existing quarry in the townlands of Philipstown and Red Bog, Co. Kildare. The Development 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 Development to relevant major accidents and / or disasters, and the potential for the Development 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 Development is vulnerable to, and the relevant accidents and disasters that the Development 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 Site.

### 14.1.2 GEOGRAPHICAL AND TEMPORAL SCOPE

The geographical study area for the assessment covers the EIA site boundary (Site) (identified on Figure 14-1) and a buffer zone of 500 m from the EIA boundary (i.e. the study area), because most potential effects from accidents and disasters relevant to the development are anticipated to have occurred within the Development footprint or immediately adjacent to it. In the context of the rEIAR, the Site boundary contains lands which form the existing quarry site and some areas which extend beyond the working areas. The substitute consent (the Planning Application) boundary is shown on the drawing set which accompanies the planning application.

The baseline for this rEIAR has been set to 18 September 2020, and the rEIAR process has assessed environmental impacts from that date to the present. This assessment period equates to approximately three and a half years and is identified as 'short-term' duration (those lasting one to seven years).

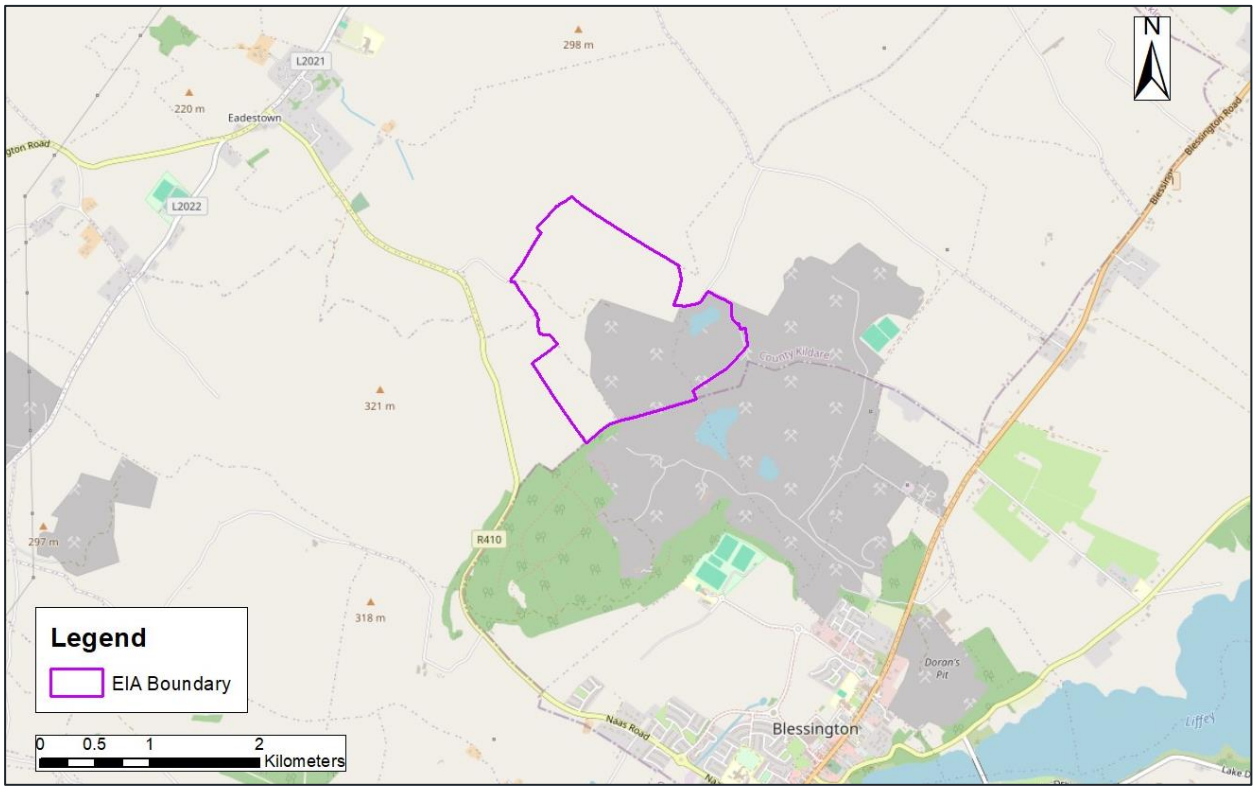


**Figure 14-1 - Location of the Site (EIA site boundary).**

## 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 2023-2029 (KCDP) is the key strategy document which structures the proper planning and sustainable development of land-use across County Kildare over the six-year statutory time period of the plan. The KCDP seeks to ensure that proposals in the county take account of the need to prevent major accidents involving hazardous substances and safeguard the public, property and the environment.

Two policies relevant to the prevention of major accidents are identified in the KCDP. KCDP Policy RE P9 relates to the compliance with the SEVESO III Directive (2012/18/EU) which the Development does not fall under. KCDP Policy RE P10, identified below:

> ***RE P10*** – *(*It is the policy of KCC to*) have regard to the following in the preparation of spatial plans and in assessing planning applications for new development, or the expansion of existing development involving hazardous substances:*
>
> - *SEVESO III Directive (2012/18/EU)*
> - *The consultation distances and HSA technical advice in relation to the industries affected by the SEVESO III Directive (2012/18/EU).*
> - *Potential adverse impacts on public health and safety.*
> - *The need to maintain appropriate safe distances between residential areas, areas of public use and areas of natural sensitivity.*
> - *The need to minimise risk to strategic infrastructure.*
> - *The specialist advice of the Fire Authority.*

### 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 Development to potential major accidents or disasters, which includes both natural (e.g., earthquakes) and man-made disasters (e.g., technological hazards);
- The Development'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 (2020 TO PRESENT)

### 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 Blessington has previously flooded in the years 1993, 2000 and 2011, which was caused by fluvial flooding of existing watercourses (OPW, 2018).

### 14.4.2 MAJOR ACCIDENTS

The Site has operated an environmental management system (EMS) from September 2020 to present day, this document manages the risk of environmental accidents occurring.

The occurrence of a major geotechnical hazard, fire, explosion or fuel spillage resulting from operations at the quarry Site, 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.

## 14.5 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.

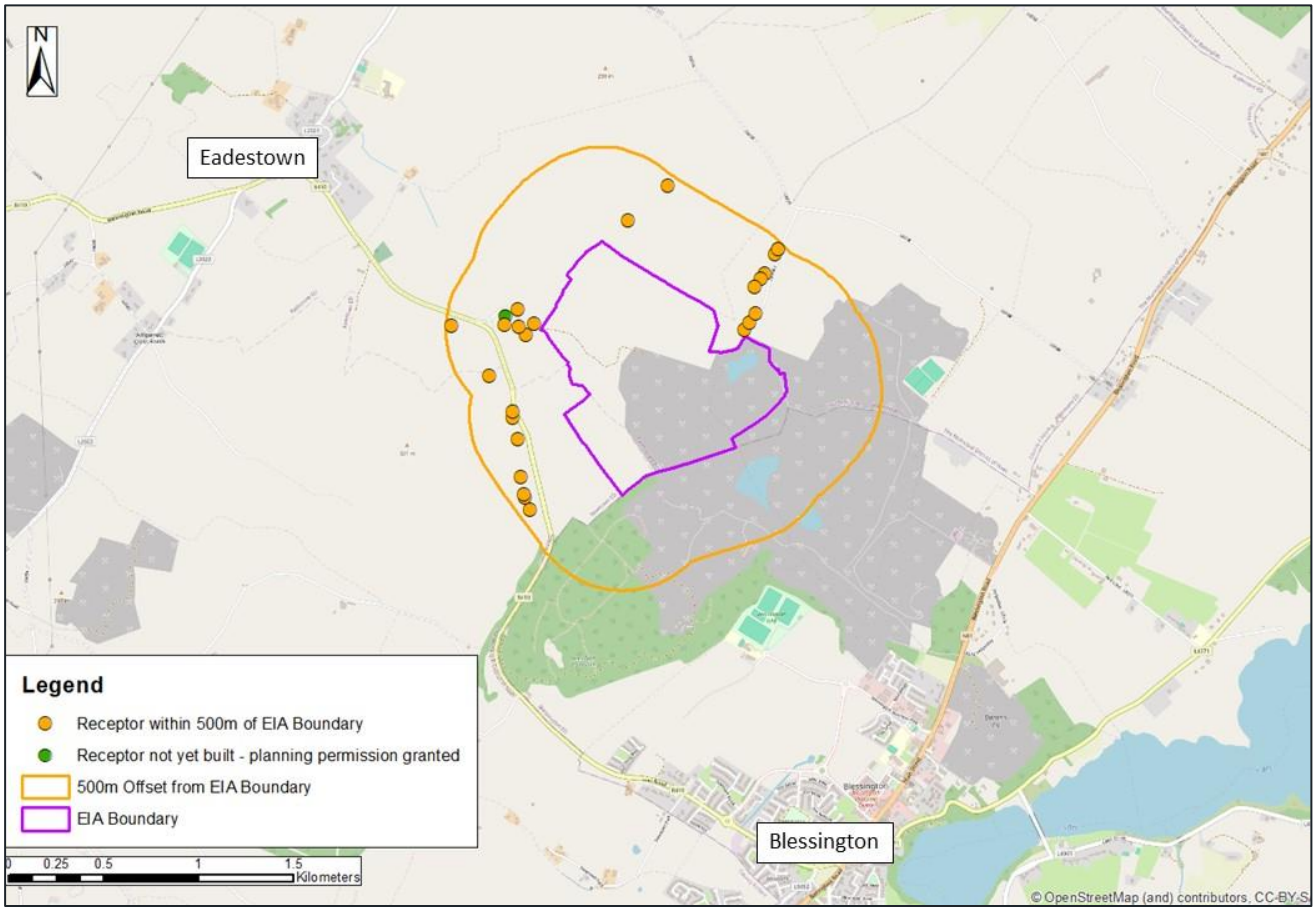


**Figure 14-2 - Location of residential receptors within 500 m of the EIA site boundary.**

## 14.6 CHARACTERISTICS OF THE DEVELOPMENT

The Development is an active rock and sand and gravel quarry located approximately 500 m east of the R410 (Blessington to Naas road). The town of Blessington is located ca. 1.8 km south of the

Site along the N81. During the assessment period there has been no blasting on Site, and rock is extracted from the quarry face using a rock breaker.

The excavated rock material is processed on the quarry floor by mobile crushing, screening, and associated plant before being stockpiled into specific graded aggregate stockpiles. Crushed rock aggregate is transported to market by road going trucks.

Sand and gravels are extracted by mechanical means using excavators and are transported to the fixed processing plant. These excavated sands and gravels are washed, screened, and processed through the fixed closed-circuit aggregate processing plant, located in the eastern part of the Site. Processed sand and gravel is stockpiled adjacent to the aggregate plant prior to being transported to market by road going trucks.

Excavation into the sands and gravels and bedrock remained above the water table, with no requirement for dewatering (as discussed in Chapter 6.0 Water).

## 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
- Flooding

These potential impacts during the assessment period of September 2020 to present are considered and assessed in Table 14-1.

**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 | Geotechnical hazards such as the collapse of a wall or surface can lead to workers being buried under fallen ground or struck by falling/sliding debris, which could cause serious harm to personnel in the quarry.<br><br>In accordance with Section 55 of the Safety, Health and Welfare at Work (Quarries) Regulations 2008 (S.I. No 28 of 2008) (SHW Quarries Regulations), a geotechnical assessment of the excavation should be undertaken by a geotechnical specialist to identify and assess all factors liable to affect the stability and safety of a proposed or existing excavation and provide conclusion as to whether there is a significant hazard by way of instability or movement.<br><br>These assessments conducted in line with SHW Quarries Regulations are considered suitable to manage the risk of harm due to geotechnical hazards and ensure there are no significant adverse effects. A geotechnical assessment was not undertaken during the assessment period and is required to be undertaken in accordance with the Regulations. |
| Accident during blasting | Quarry workforce<br><br>Members of the public | Y | N | Not Significant | No blasting has been undertaken on Site during the assessment period.<br><br>When blasting has been required, it followed the established safe working practices as it has done for many years prior to the assessment period.<br><br>Safe working practices require that all blasting operations must have a declared danger zone, and no person should be in the danger zone |

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| | | | | | when blasting is taken place. The blasting should be risk assessed which will also consider the location of any safe locations. These safe working practices will ensure that there are no persons within range of a blast and therefore no significant adverse effects.<br><br>These controls, practices and the cessation of blasting have ensured there were no significant effects arising from blasting during the assessment period. |
| Fire during operation | Quarry workforce<br><br>Members of the public<br><br>Environmental receptors | Y | N | Not Significant | The SHW Quarries Regulations require that all potentially hazardous work activities must be risk assessed and the potential risks to people must be reduced 'so far as is as reasonably practicable'. This includes all work activities which have the potential to cause a fire. 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.<br><br>Safe working practices are adopted in the quarry with additional controls on ignition sources. The inventories of any flammable substances will be minimised on Site. The Site also maintains an emergency plan, which identifies demonstrate safe evacuation in event of a fire occurring.<br><br>These controls and practices have ensured there were no significant effects arising from fire during the assessment period. |
| Accident involving physical hazards such as heavy plant or falls from height | Quarry workforce | Y | N | Not Significant | The SHW Quarries Regulations require that all potentially hazardous work activities must be risk assessed and the potential risks to people must be reduced 'so far as is as reasonably practicable'. This includes all work activities |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | which involve the potential for physical harm e.g. falls from height or impact by vehicles.<br><br>The most common accident types in quarries typically relate to physical hazards such as contact with moving machinery and isolation, work at height, and struck by moving or falling object.<br><br>Safe working practices are already in place at the Site and are managed by the Applicant in accordance with their safety management system in order to comply with the SHW Quarries Regulations, (and other applicable legislation).<br><br>These controls and practices have ensured there were no significant effects arising from physical hazards during the assessment period. |
| Spillage of chemicals or fuels to the ground | Quarry workforce<br><br>Members of the public<br><br>Environmental receptors | Y | N | Not Significant | The SHW Quarries Regulations require that all potentially hazardous work activities must be risk assessed and the potential risks to people must be reduced 'so far as is as reasonably practicable'. 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.<br><br>The use of any hazardous chemicals (e.g., diesel and other oils and lubricants used for plant maintenance) is regulated and thus their use on Site during the assessment period has been 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). Spill kits are available and easily accessible to the workers, who are |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | suitably trained to respond to spills of hazardous chemicals.<br><br>These controls and practices have ensured there were no significant effects arising from the potential spillage of chemicals or fuels 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 result in a major accident that would affect the quarry workforce.<br><br>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 | The excavations on the Site occur above the water table, and no dewatering occurs. Water is pumped from a pond/sump on the pit floor to top up water losses in the processing plant (closed circuit system).<br><br>There are no surface water features adjacent to the site which have potential to flood the quarry.<br><br>There was no potential of significant effects on the quarry workforce arising from flooding during the assessment period. |

## 14.8 REMEDIAL MEASURES REQUIRED

In accordance with Section 55 of the Safety, Health and Welfare at Work (Quarries) Regulations 2008 (S.I. No 28 of 2008) (SHW Quarries Regulations), a geotechnical assessment of the excavation should be undertaken by a geotechnical specialist to identify and assess all factors liable to affect the stability and safety of a proposed or existing excavation and provide conclusion as to whether there is a significant hazard by way of instability or movement. As this was not completed in the period of September 2020 to present, the geotechnical assessment will need to be completed.

## 14.9 RESIDUAL EFFECTS

The assessment concludes that the activities at the Site during the assessment period of September 2020 to present have not resulted in accidents or disasters that are deemed to be 'Major'. Therefore, there has been an 'Imperceptible' effect (including no effect) of the Site 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 Development with other similar developments in the locality.

## 14.11 MONITORING

A geotechnical assessment of the Site is to be undertaken by a geotechnical specialist in accordance with Section 55 of the SHW Quarries Regulations.

Further geotechnical assessment should be undertaken based on the frequency identified in the first assessment.

## 14.12 DIFFICULTIES ENCOUNTERED

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

## 14.13 CONSIDERATION OF THIRD-PARTY SUBMISSIONS MADE DURING THE HBL 2020 PLANNING APPLICATION (KCC REG. REF.: 20/532)

Following the submission of the 2020 planning application (KCC Reg. Ref.: 20/532) a number of third-party submissions were received by KCC. These third-party submissions were considered as part of the Further Information response submitted to KCC prior to the invalidation of the application in September 2020. In the compilation of this section these submissions, concerns and points of note have been addressed in this assessment.

Table 14-2 below provides a general summary of submissions relevant to this section and details where or how this item has been considered.

**Table 14-2 - KCC Reg. Ref.: 20/532 Third-Party Submission Items Relevant to the Major Accidents and Disasters Assessment.**

| Submission Item Summary | Comment |
|---|---|
| Safety hazards on site, condition of the existing quarry and public accessibility into it, opportunities for trespass, existing premises are not secure, and absence of adequate safety measures including fencing in areas of danger including cliff faces, deep water features etc. | Safety hazards are monitored routinely on site under the HBL Safety Management System. Hazards associated with major accidents and disasters during the assessment period have been assessed in this chapter. |

## 14.14 SUMMARY AND CONCLUSIONS

This assessment considers the potential impacts and effects of the Development on major accidents and disasters over the review period from September 2020 to present.

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

The assessment concludes that the activities at the Site during the assessment period of September 2020 to present have not resulted in accidents or disasters that are deemed to be 'Major'.

## 14.15 REFERENCES

Department of Housing, Local Government and Heritage. 2024. National Planning Application Map Viewer. Available at: National Planning Application Map Viewer - My Plan (Accessed: 26 January 2024).

Department of the Environment, Climate and Communications. 2024. Eircode Finder. Available at: Find or check an Eircode (Accessed: 25 January 2024)

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

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