

## 14 MAJOR ACCIDENTS AND DISASTERS

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### 14.1 INTRODUCTION

This chapter of the Environmental Impact Assessment Report (EIAR) has been prepared has been prepared to accompany a Section 37L planning application for the continuation of a quarry at Hempstown Commons, Co. Kildare (the Proposed Development). The Proposed Development is located within the administrative boundary of Kildare County Council, (KCC).

This chapter of the EIAR has been prepared by WSP Ireland Consulting Ltd (WSP) and addresses the vulnerability of the Proposed Development 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 following assessment was prepared by Lisa Cleary (B.A. (mod), GradIEMA) and Rhian Llewellyn (MGeol, PhD, PIEMA). Lisa is an environmental scientist with over 1 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 Development is vulnerable to, and the relevant accidents and disasters that the Proposed Development could give rise to. These unforeseen and unplanned events are to be assessed on the risk of their occurrence.

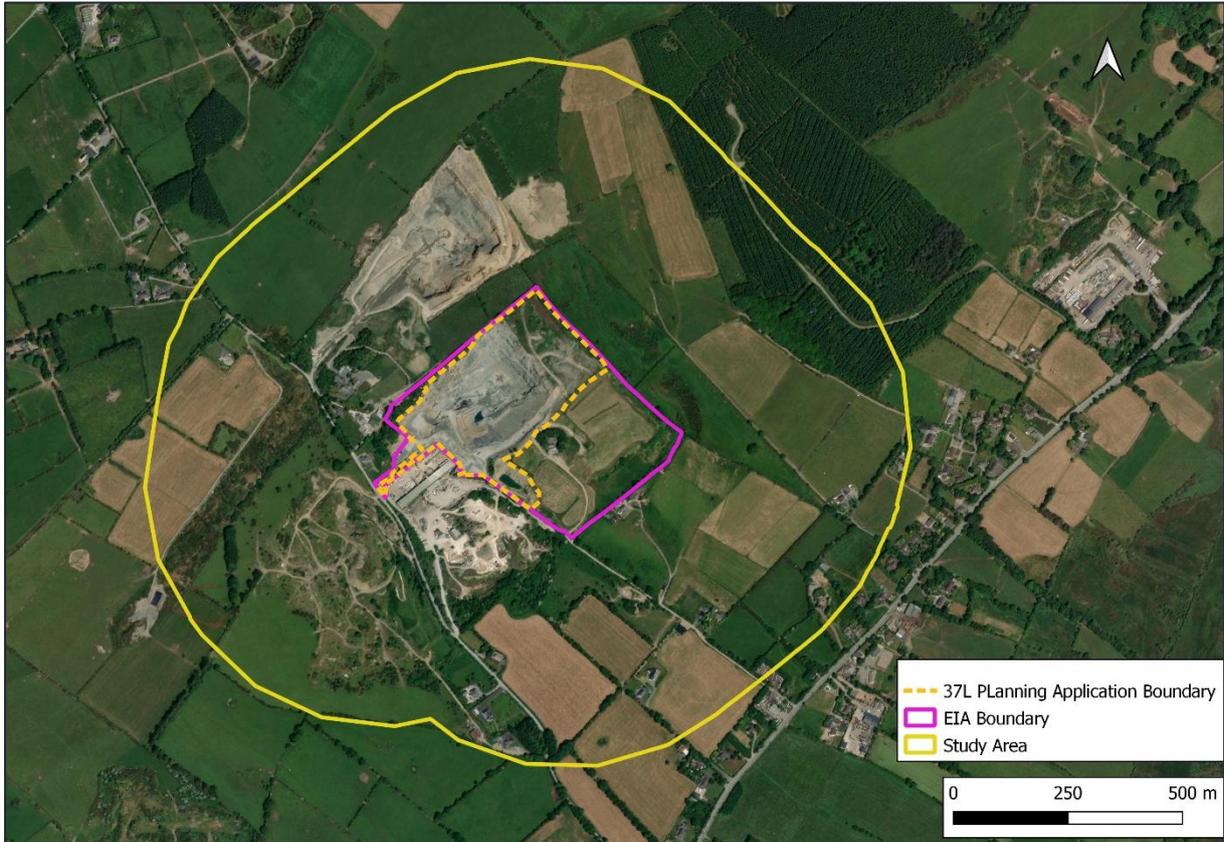
#### 14.1.2 GEOGRAPHICAL AND TEMPORAL SCOPE

The geographical study area for the assessment covers the EIA site boundary (the Site) (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 development are anticipated to occur within the Proposed Development footprint or immediately adjacent to it. In the context of the EIAR, the Site boundary contains lands which form the existing quarry site, the lateral extension areas, and some areas which extend beyond the working areas. The Section 37L (the Planning Application) boundary is shown on the drawing set which accompanies the planning application.

The temporal scope of this assessment covers the current quarrying activities on the Site and the extension of these permitted activities into the future, with the Section 37L application boundary. Given the phased nature of the extractive industry and the similarities between the construction and operational phases of the Proposed Development, these will be considered together in this chapter as the overall operational phase.

Under the current programme of the Proposed Development, the extraction phase will last for 12 years, which will provide for fluctuations in market demands for the aggregate extracted from the Site. The duration of the extraction phase is therefore classified as 'medium-term' by the EPA's 2022 'Guidelines on the information to be contained in environmental impact assessment reports'.

The restoration phase of the Proposed Development will follow the extraction phase and will be 2 years in duration, which is 'short-term' - those lasting from one to seven years (EPA, 2022).



**Figure 14-1 - EIA Boundary and study area.**

### 14.1.3 PROJECT DESCRIPTION SUMMARY

A full description of the proposed development is provided in Chapter 2 (Project Description) of this EIAR. A high-level summary of the proposed development is provided below.

The proposed development for further extraction of rock is to be within the existing void area with lateral extension of the void proposed in a north-easterly direction. The estimated total quantity of aggregate resource to be extracted in the life-of-quarry is c. 1,757,500 tonnes. A proposed 12 year life-of-quarry requirement is based on an average production rate of ca. 2,929 tonnes per week for rock. Dry processing of mechanically broken and blast rock onsite will comprise crushing and screening to produce aggregate materials for market.

SQL proposed to relocate the existing office container, wheel wash and water recycling tank, weighbridge to fully within the Application Site to provide space for realignment of the private access lane on SQL lands and to develop dedicated carparking facilities for the quarry operation on SQL owned lands.

The proposed car parking facilities will provide parking for HGVs and private vehicles, including guest parking.

SQL propose to decommission the existing abstraction borehole located off the access road to facilitate the road realignment on their own lands. SQL propose to undertake periodic extraction of

groundwater from an abstraction borehole located on Stresslite Precast Ltd to provide water for SQL's closed-loop system wheelwash recycling tank and the mobile bowser.

There will be no direct discharge to surface or groundwater from the quarry operations. Collected waters from the base of the quarry void will continue to be pumped to the primary soakaway (which is connected to an overflow soakaway). It is proposed that the collect waters will pass through a bypass separator prior to discharge to the primary soakaway. It is proposed to extend the existing sump on the quarry floor to provide additional temporary holding capacity for collected waters, if required.

Following end-of-quarry life, a 2 year restoration period is proposed. This is detailed in a Restoration and Habitats Management Plan provided in appendix 2B of Chapter 2 (Project Description) 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.

- 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 National Planning Framework (Project Ireland 2040) includes National Policy Objective 60 to “Conserve and enhance the rich qualities of natural and cultural heritage of Ireland in a manner appropriate to their significance”
- 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 2.7.5 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? Y 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 Development to potential major accidents or disasters, which includes both natural (e.g., earthquakes) and man-made disasters (e.g., technological hazards);

- The Proposed 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 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.

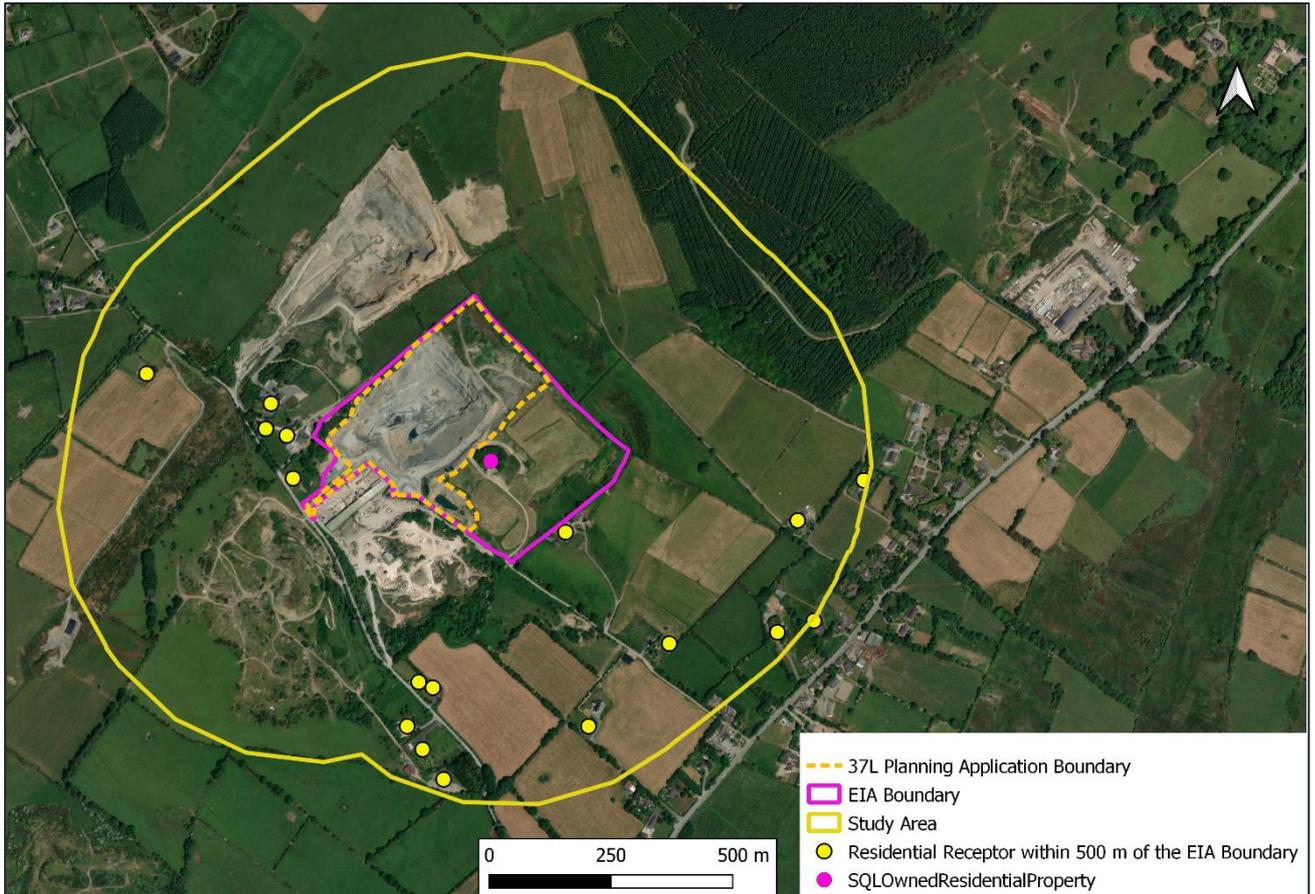
With regards to natural disasters, severe weather events such as flooding pose the greatest threat to Ireland. For example, the nearby town of Blessington has previously flooded in the years 1993, 2000 and 2011, which was caused by fluvial flooding of existing watercourses (OPW, 2018). However, there have been no previously recorded flood events within the Development's study area (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 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 boundary.**

## 14.6 CHARACTERISTICS OF THE DEVELOPMENT

This EIAR has been prepared to accompany a Section 37L for the continuation and extension of quarrying activities at the Site. The lands, the subject of this EIAR extend to 10.03 ha. and are located within the EIA project boundary for the EIAR (18.45 ha).

A continuation of activities at the Site are proposed with a lateral extension to the northeast. Proposed activities will involve the extraction of the rock (greywacke) using excavation techniques, which include drilling and blasting, and rock-breaking.

SQL propose to relocate the existing office container, wheel wash and tank, weighbridge within the Site to provide space for realignment of the private access lane on SQL lands and to develop dedicated carparking facilities for the quarry operation on SQL owned lands. SQL propose to decommission the existing abstraction borehole located off the access road to facilitate a road realignment on their own lands. SQL propose to undertake periodic extraction of groundwater from an abstraction borehole located on Stresslite Precast Ltd to provide water for SQL’s closed-loop system wheelwash recycling tank and the mobile bowser.

This application for further development of the quarry is made concurrent with an application for substitute consent for the quarry that is accompanied by an rEIAR (ABP ref. no.: ABP-321578-25).

The lands surrounding the Site can be characterised as rural in nature, with land uses in the area being agricultural, industrial and single-house residential. The lands contiguous to the boundaries of



the Site are in agricultural use to the east and west. To the north, lands adjacent to the Site are used for the aggregate extractive industry. To the south, lands are in use by a precast concrete manufacturing company (Stresslite Precast Ltd.) There are scattered residential properties in the vicinity of the Site, primarily concentrated to the south of the site along the Local Road L6030.

## 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

The potential impacts from the Proposed Development 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 a quarry wall	Quarry workforce	Y	Not Significant	<p>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.</p> <p>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.</p> <p>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.</p>
Accident during blasting	Quarry workforce Members of the public	Y	Not Significant	<p>Safe working practices are proposed to be continued on the Site and will require that all blasting operations must have a declared danger zone, and no person should be in the danger zone 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.</p> <p>These controls and practices will ensure that no significant effects arising from blasting will occur.</p>
Fire during operation	Quarry workforce	Y	Not Significant	<p>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</p>

Potential Major Accident or Disaster	Receptor	Potential MA&D (Y/N)	Risk (Significant / Not Significant)	Justification
	Members of the public Environmental receptors			<p>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.</p> <p>The Site also maintains an emergency plan, which identifies demonstrate safe evacuation in event of a fire occurring.</p> <p>These controls and practices are in place to reduce associated risks of fire.</p>
Accident involving physical hazards such as heavy plant or falls from height	Quarry workforce	Y	Not Significant	<p>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.</p> <p>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.</p> <p>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).</p> <p>The continuation of controls and practices will ensure that there are no significant effects arising from physical hazards during the operation of the Proposed Development</p>
Spillage of chemicals or fuels to the ground	Quarry workforce Members of the public	Y	Not Significant	<p>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</p>

Potential Major Accident or Disaster	Receptor	Potential MA&D (Y/N)	Risk (Significant / Not Significant)	Justification
	Environmental receptors			<p>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.</p> <p>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 using drip mats. Neither fuels nor explosives will be stored onsite.</p> <p>The continuation of these controls and practices will ensure that there are no significant effects arising from the potential spillage of chemicals or fuels during the operation of the Proposed Development.</p>
External major accident affecting the quarry	Quarry 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 quarry workforce.
Flooding	Quarry workforce	N	N/A	<p>Collected water will be pumped from the quarry floor to a primary soakaway. An overflow soakaway is available to provide additional capacity should this be required.</p> <p>There are no surface water features adjacent to the site which have potential to flood the quarry.</p> <p>A lifebuoy ring is located adjacent to the wheelwash tank and the soakaway ponds.</p>

## 14.8 MITIGATION MEASURES

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 Site should be undertaken by a geotechnical specialist to identify and assess all factors liable to affect the stability and safety of the proposed and existing excavation and provide conclusion as to whether there is a significant hazard by way of instability or movement. This assessment is required to be undertaken on the Site on a regular basis.

## 14.9 RESIDUAL EFFECTS

With the maintenance of practices identified in Table 14-1 and the undertaking of mitigation identified in Section 14.8 it is considered that the Proposed Development activities will not result in accidents or disasters that are deemed to be 'Major'. Therefore, it is considered that the Proposed Development would have an '*Imperceptible*' effect (including no effect) 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 will be **No Significant** cumulative effects of the Proposed Development with other similar developments in the locality.

## 14.11 MONITORING

A geotechnical assessment of the excavation 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 SUMMARY AND CONCLUSIONS

This assessment considers the potential impacts and effects of the Proposed Development on major accidents and disasters.

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

The assessment concludes that with the maintenance of practices identified in Table 14-1 and the undertaking of mitigation identified in Section 14.8 it is considered that the Proposed Development activities will not result in accidents or disasters that are deemed to be 'Major'.



## 14.14 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: Blessington - Google Maps (Accessed: November 2024).

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

OPW. 2024. Past Flood Events Database. (Accessed: November 2024)